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Archives of Dermatology and Syphilology

VOLUME 18 SEPTEMBER, 1928 NUMBER 3

THE FUNCTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION *

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MILWAUKEE

When the small group of men who were the charter members of the American Dermatological Association assembled at Niagara in 1877 for the first annual meeting, they witnessed the termination of an epoch in American dermatology and the beginning of a new era.

The inaugural meeting of the association marks the close of the pioneer period in the history of dermatology in this country. During most of that period dermatology existed in an unorganized state, and its condition was reflected in the restricted practice and in the meager teaching of the day. Its interests were promoted by the individual efforts of a relatively small number of men in general practice, many of them surgeons, whose special dermatologic knowledge was such as the time afforded, but who had few opportunities for personal contact or for professional advancement. The lack in their number was in part counterbalanced by their individual worth. Except among these special few, so little was known by the medical profession of the time of even the rudiments of dermatology that it was the fate of these pioneer predecessors to combat indifference, active prejudice and even ridicule, in their efforts to gain recognition for the subject.

What little there is to record of scientific advancement during the larger and earlier part of this period was achieved despite the almost complete nonexistence of opportunity for clinical and investigative work.

The early years of the last half of the nineteenth century witnessed the birth of American dermatology. An ever increasing number of young men, well trained in medicine by study at home and abroad, returned at that time to this country and to these pioneer conditions. Experience and training gained in foreign lands had revealed to them that dermatology, by virtue of its scientific development, was destined to attain an important place in the field of medicine. Inspired by the

* President's address read at the fifty-first annual meeting of the American Dermatological Association, April 30, May 1, 2, 1928.

teachings of the eminent foreign masters of dermatology, and notably by von Hebra, who was then rising to fame, they were resolved that as American dermatologists they, too, would take part in this development. As primarily essential to progress they recognized the need of change in the adverse and deplorable conditions which then held dermatology in repression. Animated with the spirit of the true believer, these prophets of a new era set themselves to the task of establishing dermatology on a firm foundation as a department of medicine, by ensuring for it the conditions under which its fullest development could be realized.

Such conditions were then nonexistent or undeveloped, for dermatology of that period was unrecognized by the medical profession at large. Its claims to representation in the medical curriculum were either denied or given wholly inadequate consideration; facilities for proper hospital care and for study of patients with cutaneous diseases were not available, and there was only the mere beginning of American dermatologic literature.

It was indeed fortunate for the future of dermatology that at this important period in its development its interests were championed by a group of remarkable men, who, though young in years and experience, even then showed the characteristics of future greatness. Without concerted effort, except for the purpose which all had in common, each in his own community strove not only to overcome the obstacles to advancement, but also to replace them with conditions that were advantageous. Their individual worth and earnest scientific endeavor gained for them that which lesser men could not have accomplished. By convincing representations, they enlisted the support of those in power and obtained a gradually increasing measure of recognition for dermatology in the medical schools, in the hospitals and among the general medical profession.

In the years that followed, their numbers were increased from time to time by the arrival of new and zealous workers, among whom were men whose talents destined them for future leadership. Aided by their efforts the prospects for dermatology grew ever brighter. An American literature appeared and progressed under favorable auspices; an increasing confidence in dermatology was manifested by the general medical profession, and the subject was made an established part of the curriculum in the leading schools.

From this time on, dermatology grew vigorously. The contributions to its literature increased in number and in importance, and a special journal devoted to dermatology was issued regularly (1870). By virtue of superior talent, certain men had already gained distinction in this new field of medicine only recently considered as barren. In the

larger medical centers, groups were formed for the discussion of subjects of dermatologic interest; its economic status was steadily improving, and toward the end of this period (1869) the first local dermatological society was organized in New York. It has the distinction of being the oldest dermatological society in the world.

Such, in brief, is the history of the progress of dermatology in this country during its early and formative years, when devoted men labored unselfishly to give direction and strength to its growth. For more than a score of years these prophets of a new order had labored to build the foundation on which American dermatology rests today.

Although a vigorous growth and sustained interest were evident everywhere, this was the result of the summation of individual and local, as distinguished from organized, effort. Men in widely separated communities had each contributed to the general progress of dermatology by guiding and fostering its local interests and growth, with the common advancement in view. By this time dermatology had outgrown the further utility of individual or local effort, although it was as yet without national character, and its standing was determined largely by conditions that were essentially local in their nature.

The time had arrived for consolidating the gains of long years of effort and for taking the next step forward by inaugurating the development of a national American dermatology under organized leadership.

The advantages to be gained by concerted action were apparent, and "the want of a common meeting ground had long been felt." At this juncture, the successful outcome of a meeting of dermatologists held at Philadelphia in 1876, in connection with the International Medical Congress, gave the final impetus.

The foundation for the new American dermatology stood prepared. They who had wrought the foundation and had been among those most active in the advancement of dermatology assumed the responsibility of further leadership. At an organization meeting held in 1876, they founded the American Dermatological Association, with its object "the promotion of the study of dermatology in all its relations." Conceived by the founders as the medium through which the future development of dermatology was to be ensured, with all that this implies in the field of science, education and practice, they did not burden the association with a system of intricate or inflexible rules for its conduct nor for guidance in achieving its objects, but left it free to develop its policies in accordance with changing conditions.

At the first meeting in 1877, a statement of "the objects underlying the foundation of the association" was presented by the president, Dr. James C. White, in his historic inaugural address. It was, in effect, a program for the development of American dermatology and a con-

structive statement of objectives, which pointed out the conditions to be met and the means whereby they were to be promoted or corrected. By voting their endorsement of this statement "in each and every respect," the charter members made this association from its inception the sponsor for dermatology in America.

In this statement, the factors considered essential at the time to the advancement of dermatology found expression as the objects or aims of the association, and, in brief outline, were "to promote a more intimate personal acquaintanceship among American dermatologists, to provide a meeting ground for discussion, to study skin diseases as they occur upon this continent, to establish a simple and uniform system of nomenclature and to foster the general interests of dermatology in all its relations to the profession and the public." This statement of purposes, to the attainment of which the association was dedicated, is the basis for all dermatologic progress in America during the past half century.

As a program for advancement it was wisely conceived, in that it is comprehensive, conservative, direct and practical, and as such it has been successful and has withstood the test of time, as is evident in the vigor exhibited by dermatology today in the fields of medical science, education and practice.

In addition, it embodies, though expressed there only by inference and further defined in the constitution, the principle of selection as applied to membership, which, however important for promoting general progress, is of prime importance for the continued functioning of the association in its capacity of sponsor for dermatology. It is this principle which has given the association its distinctive character and infused it with the spirit of leadership, and by its means the aim of the founders to maintain the association as the representative of the best endeavor and highest ideals in American dermatology has been realized throughout more than a half century.

Of other specific aims stated in the program of development, and of their progress toward fulfilment, not much need be said at this time. The great advances made in the general field of medicine during this period are reflected in every activity connected with dermatology. The vast literature of a half century testifies to the industry and scientific accomplishment of American dermatologists. Textbooks and periodicals are standards of excellence. Noteworthy contributions embodying the results of original investigation in all phases of dermatology—laboratory, clinical and therapeutic—have brought international recognition to their authors and to American dermatology.

Numerous dispensaries and outpatient departments are in operation throughout the land, the number of hospital beds reserved for dermatology is continually increasing, and there are several special institutions and hospitals devoted to clinical dermatology and research.

In medical education dermatology has made perhaps its greatest advance, rising from a position of obscurity to that of a major subject, though in several schools the policy is one of subordination of its interests. Postgraduate teaching in a number of institutions is conducted on such a high plane and is of such excellence that it is unsurpassed anywhere. It is one of the great achievements of American dermatology.

As a result of progress made not only in dermatology, but in all fields of medical activity, the conditions influencing dermatology have undergone constant change, so that today they are in decided contrast to those which existed when the association was founded. Though conditions have changed, the primary objects of the association remain the same, and their worth as means whereby to advance the development of dermatology, and to increase the usefulness of the association to its members, has been proved by the test of time. Though adhering closely to its original purposes, the association has been responsive to all opportunities which make for progress, and as changing conditions gave rise to new problems and emphasized old responsibilities, the association has adopted new policies or revised old ones to meet these problems intelligently. Thereby it not only has kept pace with progress, but has promoted it, and in so doing has constantly enlarged its sphere of usefulness.

Occasion exists today for planning to meet an old responsibility, and opportunities are afforded for the further development of the resources at hand. Two of the matters concerned have been discussed by the council, and regarding them the members have had advance information in a circular sent out by the secretary. I take this occasion to invite attention to the old question of membership and of two new proposals.

The question of membership has been reviewed by many of the presidents, has been discussed often, forcibly and at great length, and I am reluctant to introduce it again were it not that the question, if it is a question, is pressing for solution now, and the future policy of the association should be stated. The committee on membership is carrying out its difficult duties courageously and wisely and is not under any criticism, and it is hoped that discussion of this question may be helpful.

The subject has come to the fore because American dermatology is now undergoing an acceleration of activity evident to all, as a direct result of the excellence of dermatologic training, in all its aspects, which has been afforded to a rapidly increasing number of men, especially within the past ten years.

Advanced standards of education preliminary to the medical education, superior training in dermatology—both undergraduate and post-

graduate—increased facilities for the gaining of practical experience in dispensary or outpatient and other hospital services, association as office assistants with men experienced in practice and the invaluable educational experience derived from attending the sessions of local dermatologic societies have combined to produce, and will continue to produce, well qualified dermatologists. Some, in addition, are endowed with the qualities of leadership, and many rightly aspire to membership in the association. From among them must be selected those who are to carry on the purposes of the association. Their increasingly greater number will make the selection difficult, and yet to them the association has, in a certain sense, a reciprocal responsibility. Those who have qualified themselves professionally and are in other respects fully worthy, have a right to consideration for membership. Their debarment solely on the ground of numerical limitation would be an injustice to them.

As a national organization the members of the association are engaged, as a matter of traditional responsibility, in directing the execution of a national program, and the right to keep the membership within such limits as to attain most effectively the purposes of the association must be conceded. That there is an inherent danger to successful functioning in organizations with large and unrestricted membership is too well known to require elaboration here.

The association is successful in carrying out its program of development, is most useful to its members and functions harmoniously because its membership is distinctive by reason of its special qualifications to do good work. It has, moreover, a common purpose, and is not so large as to prevent every member from taking part in its activities or from forming the personal contacts which make of each meeting a reunion of friendly co-workers.

It is obvious that a greatly enlarged membership would change the character of the association and imperil all its functions. But I believe that the membership can still be enlarged during the next few years to a reasonable number beyond the present limit without other than an invigorating effect on the future of the association and without obstructing the effective execution of its purposes.

The number of men who can be considered as fully eligible is not so large at present, and may never be so large in this special field as to require strict adherence to a rigid rule of limitation. If the limit is reached, it may be set at a higher level by vote of the members of the association, as has been done before. But such action should be taken only if it conforms to the principle that the membership is always to be kept within such limits that the association will continue to function effectively.

Furthermore, its best interests require that the addition of any considerable number of new members at one time be guarded against, and

that, as heretofore, the increase preferably be gradual, enough to fill the ranks depleted by losses and a limited number in addition, thus providing for a steady, slow and sound growth.

The high standard of the association is maintainable not alone by rigorous application of the standard of eligibility, but by enforcement of the constitutional provisions relating to forfeiture of membership. The council has discussed this question and has decided on the policy of rigorous enforcement of these provisions; it has caused them to be published this year in the bulletin attached to the program. The council is of the opinion, however, that members of twenty years' standing should be held exempt from such rigorous enforcement of the rules. It is apparent that members who cease to exhibit an interest in the association or in dermatology, and who fail in continuing to do good work, thereby lower the standing of the association and obstruct its functions, and should be dropped from the rolls so that they may be replaced by men who are actively interested.

In the past year a policy was adopted by which eligibility is established for men who are primarily syphilologists but whose knowledge of dermatology is such as to make them useful members of the association. This policy should be extended, as occasion arises, to apply also to men distinguished for scientific accomplishment in other fields whose work has a direct bearing on dermatology. The addition of such men would bring an enlightening and a broadening influence into the association.

The scientific program represents the annual contribution of the association to the advance of knowledge in dermatology, and is an index for the medical world of both its ability and its vitality as an organization. The maintenance of a high standard of excellence of the program is a tradition of the association, and it should, therefore, represent at all times the best work of the contributors. A good program usually predetermines the success of a meeting, but success is assured by the combination of good papers and a good discussion. The best conceived program will fail to develop all of its possibilities if a full discussion of the papers is prevented by any cause. Discussion is the most useful part of a meeting for the members, and effort directed to promote it is an important function of those in office.

The council has considered this subject and sees in the presessional method of presenting papers a means by which to develop more fully the possibilities of the programs and to meet certain needs. The council has voted to recommend this method for trial by the association at the 1929 meeting. It is not an untried method, for it has been used successfully during the past twenty years by the section on ophthalmology of the American Medical Association. Its members have stated that it has led to more and better prepared discussion, improved the form

in which papers are presented, allows for a larger number of papers on the program and has stimulated interest in the meetings.

These points of advantage meet some of the present needs and would make the method useful to this association. Recently, the time allotted for the reading of papers has been reduced from twenty to fifteen minutes, with the primary object of providing more time for discussion, and also for allowing for one or more additional papers on the program. In a total of five scientific sessions with time for a maximum of twenty-eight papers, a place must be provided for the customary first paper of newly elected members, and for papers by those who must qualify or forfeit membership under the rule that members must present a paper at least once in five years—the time remaining being then available for those who offer papers in response to the secretary's call. The program is usually filled, and this year is at its maximum. Further details of the presessional method will be brought out when the subject is considered further.

Through all the years since its foundation, the association has followed a constructive program and developed it under a conservative policy, with the welfare of dermatology as the guiding motive. It has assumed new obligations and committed itself to new policies in support of purposes which had the advancement of dermatology as their aim. Their usefulness to dermatology was the standard by which they were judged.

An opportunity is afforded today to enter a field of activity new to the association and to give support to a project which is in part semiphilanthropic, the purpose of which is to further dermatologic progress by research. The plan was conceived by an esteemed fellow member and secretary, Dr. C. Guy Lane, and was presented to the council in tentative form. It was voted to submit the plan to the association with the recommendation that it be further developed, and that certain funds be taken from the treasury for the establishment of the research (trust) fund.

The fund as proposed gives form to other and permanent means by which the association can function to develop further one of its fundamental objects. Its worthy purpose doubtless appeals to all the members, and the realization of the project will be an enduring evidence and perpetuation of the purposes of the association.

It may have been hoped that some among the members of the association might give thought to the association as the medium for expressing in material form their faith in the enduring and beneficial character of its ideals and purposes, and I am therefore gratified to be privileged at this time to announce to the association, that a member has made provision for the payment to the association of a sum of $10,000 as a memorial after his and his wife's death. There are certain provisions to this trust but so far as they relate to the association

will be changed in accord with the policy adopted at this meeting. In expressing the gratitude of the association for this magnificent gift, I am moved to say that this evidence of the generous donor's deep interest in the enduring welfare of the association, and his firm belief in the worthiness of its purposes as high ideals of useful service to man and to science, will be an inspiring incentive to its members and to their successors to still further endeavor. Acting for the association the president expresses its gratitude to the unnamed donor.

The members of the association may well regard with pride the record of achievement in dermatology which is their heritage. It is a continuous record of progress in the pursuit of a definite aim. The founders were men of purpose and of vision, who planned wisely for the future. They wove into the fabric of the organization the high standards which inevitably destined the association from its inception to strive for and to accomplish the greater things. From its earliest beginnings the stimulating influence of its leadership has been manifested throughout the wide field of dermatologic activity—in education, in research and in practice. It followed that the traditions and history of the association are today the traditions and history of dermatology in America. Still the true distinction of the association lies less in its achievements than in its purposes.

XANTHOMA MULTIPLEX

REPORT OF A CASE *

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AND
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NEW YORK

Xanthomas have never been produced experimentally, whereas xanthosis has been reproduced. According to Weidman, xanthosis is a term designating those changes, whether local or part of a general hypercholesterolemia, in which tissues become yellow, swollen and characterized histologically by the presence of the so-called xanthoma cells which are not considered pathognomonic for xanthoma. He maintains, however, that when such additional features as distribution, extent and configuration are included, the case becomes a special form of xanthoma. Briefly, xanthosis refers to the basic pathologic process, whereas xanthoma is the term used for the clinical entity.

CASE REPORT

I. C., a white girl, aged 3 years, was admitted to the dermatologic division after having been seen in consultation with the pediatricians in the isolation ward of Lincoln Hospital, where the tentative diagnoses of conjunctivitis (probably gonorrheal) and eczema had been made on Sept. 22, 1927. It was stated in the history that the child had been born normally, but that at the age of 6 months the father had noticed a pigmented eruption on the right cheek which gradually spread to other parts of the body, first involving the whole face, especially the eyelids and lobules of the ears, later the neck and recently the whole trunk and most of the extremities.

On Nov. 5, 1926, the patient was admitted to the Riverside Hospital with a diagnosis of German measles. According to a report, "she also had an eruption of a maculopapular nature on the cheeks. This never completely cleared up. It was thought to be a chronic eczema." On November 30, the child was sent to the Metropolitan Hospital, where an examination revealed the face to be covered with brownish-red elevated lesions, some of which coalesced; a provisional diagnosis of eczema rubrum was made. Dr. V. A. Cornell, who furnished this data, stated that a biopsy was made and the following alterations noted in the specimen: "The epidermis shows no changes. There is a great deal of hyperplasia of the connective tissue with fat infiltration in between the fibers of the corium. There are also some multinuclear cells and many large cells with dark staining nuclei and enlarged protoplasm present.

"Diagnosis: xanthoma multiplex nodularis."

Previous to the pathologist's report, the original diagnosis had been changed to that of urticaria pigmentosa.

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* From the Dermatological Division, Lincoln Hospital, and the Department of Dermatology, New York Post Graduate Hospital.

While the child was under observation, she contracted measles and thus was transferred on June 27, 1927, to the Willard Parker Hospital, where bronchopneumonia supervened. Her condition progressed favorably until July 5, when a bilateral otitis media rendered the prognosis grave. The patient improved, however, so that she was readmitted to the Metropolitan Hospital on July 11. Further observations ceased when the child was discharged on September 3. The child's father added that since the last discharge, the patient had had "sore gums" and whooping cough.

When the child was seen on September 29, she appeared to be well nourished and well developed and did not show any evidence of an acute illness. There were about a dozen canary yellow, elevated, flat, irregularly shaped plaques from about 2 to 6 mm. in diameter on the eyelids, most marked on the upper lids and on the lobules of the ears. The surrounding skin was dark brown, and on the lobules it was shrunken and depressed. The plaques on the face were few, ill defined and reddish brown, while the adjacent skin showed a patchy orange-red staining, especially over the cheeks. The trunk and the proximal two thirds of the extremities presented a dirty brown and diffuse mottling, with a tendency for the pigmentation to fade gradually as the periphery of the eruption was reached.

The results of the urinalysis and the examinations of the blood are shown in the table.

Results of Urinalysis and Examination of the Blood

Specific Gravity	Sediment	Albumin	Sugar	Microscopic Observations
1.024	plus	trace	negative	few epithelial-white blood cells
1.018	plus	trace	negative	few epithelial-white blood cells

Blood Urea Nitrogen	Blood Sugar Percentage	Blood Cholesterol
10.23 mg. per 100 cc.	0.102	230 mg. per 100 cc.
15.00 mg. per 100 cc.	0.093	210 mg. per 100 cc.

Cultures of the throat were negative for diphtheria, although many diphtheroids were found. The pulse rate, temperature and respiration varied within normal limits. The results of the rest of the physical examination were negative.

Dr. Satenstein of the New York Post Graduate Hospital gave the following report on the biopsy:

"Low Power: The entire cutis from the fat to the epidermis is a dense mass of cellular elements of various sizes and types. The connective tissue bundles are noted only in the deeper cutis. The vessels are moderately dilated. Hair follicles and few coil glands in deep cutis are present.

"High Power: The cutis for the greater part appears to be composed of many connective tissue cells (of fibroblastic type). Remnants of collagen bundles appear vacuolated. Scattered throughout the cutis are irregularly sized and shaped cells, containing varying numbers of nuclei of the fixed connective tissue cell type. The protoplasm of these so called multinucleated or giant cells is very finely vacuolated (at first glance appears to be granular). These cells are the typical multinucleated xanthoma cells. At various points between the cells are suggestive cuboidal spaces (cholesterin crystal).

"Diagnosis: xanthoma."

After the patient had been on a low fat diet for about ten days, the intensity of the brownish maculation lessened, especially over the trunk and the extremities. The yellow plaques on the eyelids, ears and face remained unaffected.

Insulin therapy was not tried, because we felt that there was no indication to warrant its use. After a total observation of six weeks, the patient was discharged improved, as further study was not permitted by the child's father.

SUMMARY

1. A case of xanthoma multiplex with generalization of the eruption in a white girl, 3 years old, is described. The different stages of evolution of the xanthotic process, as they appear clinically, were presented by this patient.

2. Hypercholesterolemia was present, but no other abnormality was noted in any of the organs which are suspected of playing an important part in the pathogenesis of the disease.

3. A diet low in fats seemed to improve the appearance of the lesions that were of recent development; this improvement, however, was temporary.

LI.—SOME BIOLOGIC FACTORS IN THE STUDY OF CANCER, WITH SPECIAL REFERENCE TO THEIR RELATIONSHIP TO PRECANCEROUS LESIONS OF THE SKIN *

LOUIS H. JORSTAD, M.D.
ST. LOUIS

In 1910, Burrows [1] took up the study of cellular growth in vitro. Harrison [2] had studied the behavior of the isolated central nervous system, as well as other tissues of young frog embryos in hanging drops of fluid lymph obtained from the lymph sac of this animal. This lymph was not a good medium for cellular growth, thus Burrow's problem was that of obtaining a suitable one, so that cells of different types might be grown in vitro. Harrison was unable to obtain a growth of cells. He had obtained a growth of nerve fibers and a migration of the cells, but multiplication of the cells was not obtained. Burrows undertook to see if the cells could not be cultivated under some such similar conditions. The lymph which Harrison had used was not a good medium in that it could not be obtained readily from higher animals and it could not be obtained from the frog in quantities sufficient to prepare control cultures. Burrows developed a method for preparing plasma from the blood of chickens. He found that the cells of chick embryos grew readily and divided by mitosis in the chicken plasma. He was thus able to develop for the first time a general method for the cultivation of cells in vitro.[2]

In 1910 and 1911, Carrel and Burrows then tested the application of this method to adult tissues.[3] They showed that plasma could be

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* From the Research Laboratories of the Barnard Free Skin and Cancer Hospital.

* Studies, observations and reports from the dermatologic departments of the Barnard Free Skin and Cancer Hospital and the School of Medicine, Washington University, St. Louis, Mo., service of Drs. M. F. Engman and W. H. Mook.

* Read before the Annual Meeting of the Mississippi Valley Dermatological Society, Nov. 19, 1927.

1. Burrows, M. T.: The Cultivation of Tissues of the Chick Embryo Outside the Body, J. A. M. A. **55**:2057 (Dec. 10) 1910.

2. Harrison, R. G.: Observations on Living Developing Nerve Fibers, Proc. Soc. Exp. Biol. & Med. **4**:140 (Aug.) 1907; The Outgrowth of the Nerve Fiber as a Mode of Protoplasmic Movement, J. Exper. Zool. **9**:787 (Dec.) 1910.

3. Carrel, A., and Burrows, M. T.: Cultivation of Adult Tissues and Organs Outside of the Body, J. A. M. A. **55**:1379 (Oct. 15) 1910; Artificial Stimulation and Inhibition of the Growth of Normal and Sarcomatous Tissues, J. A. M. A. **56**:32 (Jan. 7) 1911.

prepared from many different animals and from man, and that tissues from both embryos and adults survived and showed activity in hanging drop cultures, whether plasma from the same animal or another animal of the same species was used. This was true of connective tissue cells as well as of epithelial cells.

At this time Burrows found that embryonic and tumor cells grow with great vigor in the cultures and that in every case the connective tissue cells grow more actively than the epithelial cells. In the first case there was extensive dissolution of the plasma clot, the cells wandering and dividing, and often showing growth and division. The epithelial cells, while showing a great ability to digest the fibrin in the plasma clot and to move actively, divided less frequently than the connective tissue cells. It was also found that the greatest activity generally occurred in autogenic and homogenic mediums; growth was more marked in embryonic than in adult cells; the cells and plasma of an animal in a good state of nutrition were more active than those of an animal in a poor nutritional condition. Some heterogenous cultures grew well, while others were toxic and probably contained inhibitors to heterogenous tissue cells. In these earlier studies (1911) Burrows was not only able to develop a method for cultivating tissue cells, but he showed that by changing the mechanical relations of the tissue to the medium the cells could be changed from a state of growth to one which resembled differentiation. In other words, he showed that the behavior of these cells at all times was controlled by the environment.

TECHNIC IN THE PLASMA METHOD

The technic in the plasma method consisted of extirpating small pieces of tissue of an animal, inoculating them aseptically into a drop of the plasmatic medium taken from the same animal and sealing the materials in hollow glass slides.[4] The slides were placed in an incubator maintained at a constant temperature suitable for the tissues of the particular animal (frog tissue 70 F.; mammalian tissue, 98.6 F.; chicken tissue, 103 F.). The microscope used for the study of the growth of these cultures was placed in a special thermostat kept at this temperature. This is the method of choice used for tissue culture today.

Fragments of the skin of an adult frog show evidences of growth after one to six hours in the plasma culture. Masses of epithelial cells appear on the edge of the epithelial layer of the skin at this time. They migrate actively, but do not grow. Through these movements alone, wounds in these fragments were seen to heal.

REVIEW OF THE LITERATURE

In 1911, Burrows studied the environment suitable for growth of cells. He found that isolated cells will not grow in plasma clots. Cells

4. Burrows, M. T.: Tissue Culture in Vitro, Proc. of the XVII International Congress of Medicine, London, 1913, General Pathology and Pathological Anatomy, pp. 217-237.

grow only about fragments of tissue and the growth as well as the migration of any cell is proportional to the size of the fragment, the cell density of the fragment and inversely proportional to the thickness of the layer of plasma, provided that the size of the fragment and the thickness of the layer of plasma clot are not too great for oxygen to diffuse to all parts of the fragment of tissue. Oxygen is absolutely essential for all of these acts. He later showed that under these conditions this growth could be stopped by washing the cells with a stream of blood serum. The environment suitable for cellular growth was found to be one in which the cells are closely crowded in a stagnant medium.

While isolated cells will not grow in a drop of plasma, it is interesting to note that these same cells will grow readily in this plasma if to it is added an extract of a culture containing a cellular fragment and growing cells or an extract of any actively growing tissue of the body. Using this method, Burrows studied extracts of various tissues of the body of embryos and adults. He found that the growing tissues of adults contained this stimulating substance, while the differentiated tissue that had ceased to grow did not contain it. If fragments of these same tissues which did not contain this stimulating substance were cut from their circulation in the body and placed in a culture, they developed it after a certain latent period.

In 1911, Carrel and Burrows had already noted that extracts of cancer and embryonic tissue stimulate the growth of other cells in vitro. It had thus become evident to them that the active growth of these tissues was due to the presence of an actively stimulating substance in them. While Carrel has continued to report experiments showing that these substances exist in embryonic tissues and that they prolong the life of cells in vitro, the nature of this substance has remained for further solution.

In 1917, Burrows and Neymann [5] thought the growth was a highly specific reaction and one that would continue as long as these specific substances were liberated from the fragment in the tissue culture, the proper mechanical organization was maintained about the cells, ample supply of oxygen was present and the waste products of the reaction were removed.

PROBABLE CAUSES OF CANCER

From these observations on the reaction of adult cells in the cultures, it has already become evident that the presence of the stimulating substance in the cancer and embryonic tissue is not due to any peculiarity of the cancer cell. Normal cells of the adult when placed in the stagnant culture develop this substance rapidly. In a further study of this

5. Burrows, M. T., and Neymann, C. A.: Studies on the Metabolism of Cells in Vitro, J. Exper. Med. **25**:93 (Jan. 1) 1917.

substance, which has been called the archusia (S), Burrows finds that it is readily soluble in the blood of the body. It is soluble in blood plasma, in blood serum, and in salt solution. The cells cannot retain it. The absence of this substance in the adult and in all differentiated tissue was probably only the result of an active circulation in these tissues.[6] In proof of this deduction, Burrows has pointed out that all actively growing tissues of the body are not only cellular, but have a poor circulation, while the differentiated tissues have a rich and active blood supply.

Counsellor and McIndoe have studied the arterial and venous supply of the tissue of the normal adult and the malignant tissue by a technic of corrosion and injection.[7] They found that cancerous areas have a normal arterial and reduced venous supply as compared to normal tissue. This, of course, would produce a stagnant circulation in these areas.

In studying the oxidation in cells, Burrows found that a decrease in blood supply need not affect the growth of body cells so far as their supply of oxygen is concerned. Body cells grow as readily in 8 per cent of oxygen as in the normal 20 per cent of the air.[8] He also found that if sufficient archusia is added, the body cells do not need any oxygen for their reactions of function, growth and migration. Fragments of tissues of older embryos containing too little of the archusia for any cell reaction need oxygen to produce the archusia in the exact proportion to the archusia formed.[9]

Drew repeated the work of Carrel and Burrows and thought that the stimulus of cancer was the result of autolysis.[10] Burrows has shown that this autolysis produces substances that are toxic for cells. The degeneration noted by Drew is the result of an excess of stimulus rather than a primary product. The archusia is the energy for all life in these cells. In low concentrations (S^1) it has no effect, the cells are completely inactive as in the connective tissue areas of the normal adult. In higher concentrations (S^2) the cells undergo migration, engorge themselves with fat, differentiate and function. In still higher concentrations (S^3) the cells digest their intercellular substances, the protein particles and fat droplets in themselves and in the food and

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6. Burrows, M. T.: Studies on Cancer, Proc. Soc. Exper. Biol. & Med. **21**:94, 1923.

7. Counsellor and McIndoe: Scientific Exhibit, American Medical Association, Seventy-Seventh Annual Session, Dallas, 1926.

8. Burrows, M. T.: The Oxygen Pressure Necessary for Tissue Activity, Am. J. Physiol. **43**:13 (April) 1917.

9. Burrows, M. T.: The Reserve Energy of Actively Growing Embryonic Tissue, Proc. Soc. Exper. Biol. & Med. **18**:133, 1923.

10. Drew, A. H.: Growth and Differentiation in Tissue Cultures, Brit. J. Exper. Path. **4**:46 (April) 1923.

grow and divide by mitosis. In all higher concentrations (S^4) the cells are digested. This digestion of cells is seen in the central part of the small fragments in the cultures and in all cells in stagnant cultures as they age.[11]

In 1923, Chambers[12] found that plant tissue behaves in a manner similar to animal tissues. It is in the embryonic plant that this growth stimulus is abundant. The cells in small fragments of plant tissue separate in the culture, while larger fragments grow to form plants.

In 1911, M. R. and W. H. Lewis showed that embryonic tissue of the chick can be grown in drops of liquid medium, such as Ringer's solution, Locke's solution, or a simple isotonic solution of sodium chloride.[13] Burrows found that only the actively growing tissues of embryos and cancer can grow under these conditions. The cells of chick embryos do not contain yolk granules, but the cells of frog embryos contain these granules. Many cells of all aged embryos and adults grow, however, in plasma clots. Yolk laden cells that are not taken from embryos will grow in plasma clots.

Harrison thought that the plasma was a better medium for cells because it acted as a solid support for these cells. In studying the migration of cells in the clot, it became evident, however, that the plasma acts in a different capacity. As Burrows has pointed out in special articles, it acts to stimulate growth, migration and function in that it absorbs and removes a special substance from the cell. This substance has been found to be a soaplike substance which is not soluble in a solution of water or salt, but is soluble in protein and fats. The cells in the tissue culture migrate into plasma and not into salt solution because their surface tension is lowered by this substance only in the presence of a protein or a fat. This substance has been called the ergusia. The yolk of embryos and the tissues of adults are rich in this substance. It inhibits growth. Growth depends not only on conditions which allow the archusia to accumulate (stagnation and cell crowding), but also on the removal of this inhibiting substance, the ergusia. It is one of the essential constituents of the intercellular substances of the body, the connective tissue fibrils, bone and tendon. It is used in the functional acts of all cells.[14]

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11. Burrows, M. T., and Johnston, C. G.: The Action of Oils in the Production of Tumors, Arch. Int. Med. **36**:293 (Sept.) 1925.

12. Chambers, W. H.: Tissue Cultures of Plants, J. Missouri M. A. **21**:55 (Feb.) 1924.

13. Lewis, M. R., and Lewis, W. H.: The Cultivation of Chick Tissues in Media of Known Chemical Constitution, Anat. Record **6**:207 (May) 1912.

14. Burrows, M. T.: Is Cancer a True Disease or Merely the Result of a Condition of Change in the General Organization of the Organism, Radiology **4**:407 (May) 1925.

These facts showed definitely that cancer may be only the result of any condition which may cause a local accumulation of cells and a relative reduction in the circulation to this mass. In proof of this conception, Burrows has found that any dense mass of cells may destroy a less dense mass of these same or other cells, including the blood vessels. It became evident, therefore, that such a dense mass of cells when once established may continue to grow and reproduce itself in the organism.

In recent years, it has been shown definitely that cancer may be induced by a variety of substances and conditions, such as coal tar, other lipoid solvents, roentgenotherapy, radium, bacteria, certain animal parasites, congenital defects and other conditions. These do not produce cancer under all conditions. After the cancer has been produced by any one of these substances or conditions, they are not necessary for the subsequent growth and development of the malignant condition in the organism.

I have studied carefully the action of coal tar and other lipoid solvents in the production of cancer.[15] Drops of coal tar draw the tissue cells away from their intercellular substances and crowd them about their periphery; this is done by its ability to dissolve the ergusia of the cells. It may take all the ergusia away from a few cells and cause them to be reduced to a hyaline mass. When larger number of cells are drawn by the drops of tar, it becomes saturated with ergusia before the cells are destroyed. These cells thus crowded in a stagnant environment about the drops will accumulate and grow. Large drops of coal tar in the tissue not only cause a degeneration of the cells but kill the cells. I have further shown that this loss of ergusia to the cell can be restored to a certain degree and the toxicity of coal tar to the animal can be prevented by feeding ample quantities of vitamin A.[16] The ergusia is evidently identical to or is formed by the vitamin A of the food.[17] Burrows and I have further shown that vitamin B is only the archusia of other cells in nature.[18]

In studying the production of cancer by means of bacteria, Burrows and I have shown that *Pseudomonas tumefaciens* produces cancer by an excessive production of archusia. Burrows has found that carcinoma

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15. Jorstad, L. H.: A Study of the Behavior of Coal Tar in the Tissue, Proc. Soc. Exper. Biol. & Med. **21**:67, 1923; Behavior of Coal Tar in Adult and Embryonic Tissue, J. Cancer Research **9**:232 (June) 1925.

16. Jorstad, L. H.: The Relation of Vitamins to the Reaction Induced by Coal Tar in the Tissues of Animals, J. Exper. Med. **42**:221 (Aug.) 1925.

17. Burrows, M. T., and Jorstad, L. H.: On the Source of Vitamin A in Nature, Am. J. Physiol. **77**:38 (June) 1926.

18. Burrows, M. T., and Jorstad, L. H.: On the Source of Vitamin B in Nature, Am. J. Physiol. **77**:24 (June) 1926.

can be induced in the normal skin of rats by cutting down the circulation and injecting a Berkefeld filtrate of a Jensen sarcoma into the area.[19] The Jensen sarcoma does not contain any noticeable amounts of vitamin A, but large quantities of vitamin B or the archusia occur. Extracts of young rat embryos will not produce the cancer. The extracts are rich in vitamin B, but contain small quantities of vitamin A also.

As shown by other work in the laboratory carried on in conjunction with Dr. Ernst, the roentgen rays produce vitamin B in the organism.[20] By administering carefully regulated doses to repeated series of rats fed on rations containing varying quantities of vitamins B and A, certain quantities of roentgen ray will protect an animal deficient in vitamin B against the decrease in weight caused by such a diet. Greater doses may protect for a time against a deficiency both of vitamin B and vitamin A. Still greater dosages of roentgen ray kill the animal. Animals fed on a high vitamin A ration withstand greater amounts of roentgen ray also. In that roentgen ray causes an increase in the availability of the vitamin B or archusia in the system, it is evident that repeated doses of roentgen ray over a localized area of normal skin should produce cancer. The quantity of roentgen ray dosage is an important factor in this regard. Some of my later experiments show that there is a rather small margin of difference between the quantity of roentgen ray which will cause a complete hyalinization and destruction of tissue and one which will produce a partial hyalinization. This work seems to indicate that the latter condition is more apt to be followed by a malignant change. With the application of 50 milliamperes of roentgen ray to the skin of a rat, Lane and I [21] have obtained complete hyalinization of the entire skin layer. With 30 milliamperes there is considerable hyalinization, but portions of hair follicles and deeper lying parts of the skin persist; these undergo hyperplasia. It may be in this way that roentgen ray causes an increase in the availability of vitamin B or archusia in the system and thus it becomes evident that repeated treatment of roentgen ray over a localized area of normal skin should produce cancer.

In studying bacteria in the light of these facts, it has been found that bacteria divide themselves into classes. The same is true for

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19. Burrows, M. T.: The Experimental Production of Malignant Ulcers in Rats, J. Missouri M. A. **22**:145, 1923; The Production of Malignant Ulcers in the Skin of Rats, Arch. Path. & Lab. Med. **4**:380 (Sept.) 1927.

20. Burrows, M. T.; Jorstad, L. H., and Ernst, E. C.: The Effect of X-Rays on the Vitamin Needs of the Organism and Cancer, Radiology **7**:279, 1926; Cancer; Vitamin Imbalance and Roentgen-Ray Activity, J. A. M. A. **87**:86 (July 10) 1926.

21. Jorstad, L. H., and Lane, C. W.: Comparative Studies of Histological Skin Changes Produced by X-Rays and by Lipoid Solvents, Proc. Soc. Exper. Biol. & Med. **24**:886, 1927.

animal parasites. Some produce, in addition to their growth stimulus, other substances toxic to body cells. Yeasts are an example of the latter type; they produce vitamin B in their growth and alcohol in their secondary fermentative reaction.

It is evident, therefore, in the light of these deductions from direct measurements of the life of the cell, that the normal condition of a tissue, cancer, hyalinization and atrophy, are only the evidences of differences in the balance of certain substances in the tissues and that inactive agents become important only as they influence these factors.

In the study of the influence of a certain number of these agents on the skin, I have found that coal tar and other lipoid solvents, when applied to the skin of a rat, produce an extensive hyperkeratosis if applied at short intervals over a certain period of time. Many workers have noted that the application of tar to the skin of the rat does not produce a malignant condition as it does in the mouse. By producing a roentgen-ray burn first and following this with repeated application of a lipoid solvent, Lane and I produced both a hyperkeratosis and a hyalinization of the deeper structures. The hair follicles were not destroyed with the proper dosage of roentgen rays; they became hyperplastic but did not become cancerous.

Hyalinization proceeds with the development of cancer; atrophy does also. Burrows has shown that actively growing embryonic tissue introduced into the derm of animals causes atrophy, hyalinization and ulceration of the surrounding tissue, but not cancer. An extract of Jensen sarcoma added to the embryonic tissue may produce sarcoma. Evidently only a certain amount of growth stimulus is necessary to induce a malignant condition in this cellular and poorly vascularized tissue.

As has been pointed out in previous papers from this laboratory, cancer must be considered as a deficiency disease like that of diseases of the thyroid gland, scurvy, rickets, beriberi and similar conditions.

Studies with the tissue culture have shown that the cells of the body are not different fundamentally from the simple forms of life. Cells perform the function peculiar to them in the body only when they are acted on by the general forces in the body. The body cannot form immune bodies against its own cells; thus it cannot form immune bodies against cancer as it does against bacteria.

In that cancer is a deficiency disease, the nature of this deficiency, especially as applied to the precancerous dermatosis, is of importance. What takes place in the body as a whole as well as in a localized area during the production of cancer? Is cancer the result of a general deficiency, or is it a local deficiency with extrinsic factors playing a secondary but important rôle?

With the aging of the skin, a hyperkeratosis followed by a definite malignant change is produced. With the aging of an artery or the arterial system, an arterial sclerosis is brought about. If these conditions occur early in life they are considered premature.

Little in addition to conjecture has been offered to account for the aging of different systems in different persons. The constant contact with rain, wind or sunshine offers a reasonable explanation for the premature keratosis known as "sailors disease." That some skins are more sensitive to environmental conditions than others is well demonstrated by the range of changes varying from the appearance of xeroderma pigmentosa in young persons to the widespread appearance of keratosis in persons past 60 years of age. Xeroderma pigmentosa undergoes malignant transformation early in life. This malignant transformation is a progressive affair. The influence of light in the precipitation of this condition is well known. It is known also that the shorter rays of the spectrum induce chemical decomposition and oxidation when brought in sufficient contact with tissues. That they have a decided effect on the lipoid element in the tissue is well known.[22]

The pigmentation of the southern races and the tanning of people exposed to sunlight must be a protective action. The exact nature of this pigmentation process is not clearly understood. In xeroderma pigmentosa there is an excessive keratinization associated with the pigmentation which leads to cancer formation.

The resulting lesion after roentgen-ray burns is that of an epidermis which in places is made up of excessive dense keratinized layers, while in places the cells do not show any tendency for keratinization.[23] The corium is poor in blood vessels and in areas undergoes necrosis. There is no doubt that cancer results in the areas of intact cells surrounded by or contiguous to the hyalinized areas. These masses of cells are in a stagnant environment from which the lipoid elements containing the growth inhibitors (ergusia) have been removed.

In xeroderma, there is the same condition as in hyperkeratosis senilis and both of these may be likened to the roentgen-ray burn. Hyalinized tissue has been shown to be low in ergusia, the active tissue contiguous to it suffers a loss of ergusia to it, the archusia is allowed to pile up in the intact cells remaining, and areas over the whole body, especially those exposed to the sun's rays, undergo malignant transformation.

The histologic changes seen in these conditions are similar, and they are of the same nature as the histologic picture in the skin of the animal

22. McCollum: Text Book of Pathology, Philadelphia, W. B. Saunders Company, 1918, p. 371.

23. Wolbach, S. B.: The Pathological Histology of Chronic X-Ray Dermatitis and Early X-Ray Carcinoma, J. Med. Research **21**:415, 1909.

to which a lipoid solvent has been applied over a period of time or in which a roentgen-ray burn has been induced.

The usual conditions found in lentigo, atrophy, verruca, nevus pigmentosus, papillomatous and malignant growths, are correspondingly exhibited in the various lesions of xeroderma pigmentosa. This may be considered as xeroderma of the young and "sailors disease" the xeroderma of adults. Xeroderma is a typical carcinomatous disease. The pathologic histology has been studied by many workers (Kaposi,[24] Crocker, Taylor, Vidol, Quinquared, Unna, Pollitzer [25] and others).

The individual predisposition to cancer in man and especially the perdisposition to malignant conditions of particular organs in man when considered from the point of view that these studies have given us, throws a different light on the subject. In addition to external or extraneous conditions which may play an important part, the response of the body is an important factor. This body response is regulated to a degree apparently by the concentrations of vitamins B and A in that general system.

Research workers have noted that cancer may be induced on the skin of mice by repeated coal tar painting. The percentage of production is low and by some is thought to be no more than accounted for by the incidence of spontaneous tumors in these animals. It is more difficult and some may consider it impossible to produce cancer of the skin in rats by repeated coal tar painting. The rat's stomach, however, is considerably more prone to malignant transformation by spiroptera or ingestion of coal tar than the stomach of the mouse.

In the studies of roentgen-ray burns induced in the white rat, however, I have found the same type of histologic change as that described for man. The application of lipoid solvents to the skin as well as the injection of them into the subcutaneous tissue induce a similar type of lesion. I have noted that the varying amount of roentgen rays produce either a complete degeneration of the skin over the area subjected, or a partial and superficial atrophy which may disappear within a short time. As has been stated in previous papers, the embryonic tissue of the rat undergoes malignant transformation in a small percentage of cases when coal tar or extract of an actively growing sarcoma is injected into it. A hyperkeratosis with concomitant hyperplasia of the glandular structure of the adult skin occurs after frequent painting with a lipoid solvent. A 50 per cent dilution of coal tar or pine tar applied to the skin of rats on a well balanced stock ration gives more satisfactory results. The mortality is not so high. At least, typical precancerous

24. Kaposi, M.: Twentieth Century Practice: Diseases of the Skin, vol. 5, New York, William Wood & Company, 1895.

25. Pollitzer, S.: J. Cutan. Dis., **10**:133 (April) 1892.

lesions are formed. Thus it seems logical to assume that the rat may not be immune to the induction of malignant conditions, but is highly susceptible to the agents commonly used for the experimental production of cancer, especially coal tar.

The first formal report of the lesions produced by severe roentgen-ray burns or by repeated exposures to roentgen ray on the human skin appeared in 1896 (Marcuse). The development of fatal carcinoma was reported in 1904, and at this time Unna brought out a careful histologic study of the lesions from the early acute dermatitis to the well developed carcinoma.

After repeated exposures to light, a considerable interim, varying from three to eleven years, may ensue before the malignant condition occurs. This period is marked by thickening of the skin, dryness, scaliness, keratosis, fissures, alopecia and cyanosis. Local areas of keratosis may form at any time in this period. DaCosta has found that 18 per cent of the patients with lupus vulgaris develop carcinoma after roentgen-ray treatment, but carcinoma is by no means an uncommon occurrence when treatment is not given. Carcinoma may develop in the burn which has been preceded by a period of acute dermatitis, or it may develop on a burn which has been severely ulcerated. The malignant condition occurs in the bases and edges of the ulcers, or beneath multiple foci of keratoses. One finds beginning keratoses in these roentgen-ray burns of thirty days standing. In the more chronic lesions, fibrosis and atrophy are predominant.

Paget's disease first appears as a keratosis of the nipple with a spreading partially eroded and a scaling surface extending over the entire breast and chest. Only where the carcinoma forms the last stage of some well known dermatosis, and develops from it necessarily as in xeroderma pigmentosum, sailors skin, chimney sweeps skin, paraffin skin, leukoplakia, Jacob's ulcer, Pagent's eczema, or exceptionally as in lupus, syphilis, mycosis fungoides, has the genesis of the cancer been more evident, and in some of these cases the histologic form of the cancer may be prophesied from the previous clinical condition.

Hyalin in different forms or stages of development is found in these developing cancers and in the precancerous lesions. The superficial layer of the skin in xeroderma and in keratosis is a good example of the formation of keratohyalin. The connective tissue of the skin undergoes a hyaline change also. About all forms of malignant growth one finds areas of hyalin, at least cells that have undergone partial hyalinization. It is on the surface of the skin or on the periphery of the actively growing area that such hyaline changes more commonly appear. The significance of this hyaline degeneration has been cited by Burrows in his studies with the tissue culture. His studies indicate that the chief constituents of the cells and their intercellular substances

are proteins and certain lipoid substances, chief of which is the ergusia. The removal of the ergusia must lead to the precipitation of the protein base as a granular or hyaline mass. Hyaline tissue is low in ergusia, it has lost its ergusia to the more cellular tissue about it. This is demonstrated in my studies with the injection of lipoid solvents in the tissues of animals. The tissue about droplets of these substances undergoes hyalinization in that their ergusia has been absorbed by the lipoid solvent.

The degree of hyalinization about droplets of lipoid solvents introduced into the tissues of the experimental animal varies with the type of solvent used as well as the nutritional state of the animal. Coal tar is the most active lipoid solvent and induces a marked hyalinization of tissues into which it has been introduced. Mazola oil and paraffin are less drastic solvents and induce a lesser degree of hyalinization about them. The degree of hyalinization also varies with the vitamin content of the dietary consumed by the animal in the laboratory. A small amount of hyalinization is seen about droplets of coal tar in an animal fed a dietary rich in vitamin A, while considerable hyalinization is seen about droplets of mazola oil (a less drastic lipoid solvent) in the tissues of an animal on a dietary low in vitamin A.

Wolbach and Howe have stated, "With a protracted vitamin A deficiency keratinization begins in numerous foci and spreads out from these. This proliferation of hornifying epithelium resembles the early stage of carcinoma formation." [26] Such a condition or process is not apt to lead to the formation of cancer as the generalized atrophy of the animal ends in the death of the animal. The resistance of the animal is low and a low grade concomitant infection usually causes death.

Taussig alluded to the relationship of atrophy and hyalinization of the vulvar skin to the formation of carcinoma.[27] He could not sustain by his observations the statements of many authors that a leukoplakia preceded every vulvar carcinoma. In his group, however, he found that those that had developed an extreme atrophy of the kraurotic type were distinctly more benign.

Thus, again, one notes the marked relationship between degree of atrophy and hyalinization and the formation of carcinoma.

The pathologic process of the well established malignant conditions following these dermatoses has been well described by many authors. The clinical observations in the precancerous dermatosis have been well described. Conditions that facilitate and inhibit the transition are well known. These studies throw some light on the conditions that exist

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26. A New Feature of Vitamin Deficiency, editorial, J. A. M. A. **85**:2035 (Dec. 26) 1925.

27. Taussig, F. J.: Precancerous Lesions of the Skin of the Vulva, Arch. Dermat. & Syph. **1**:621 (June) 1920.

in the stages between the precancerous dermatosis and actual cancer, and the actual events that take place during this transition.

As J. M. H. MacCleod stated in his textbook [28] "Any persistent localized hyperkeratosis may, in late adult life, form the basis of a cancerous growth." Hyperkeratosis is seen following arsenical, chimney sweeps' and tar workers' dermatitis. Hyperkeratosis is a condition different from parakeratosis in that the cells are imperfectly cornified in the latter type and form friable masses and scales, such as are seen in psoriasis. This differentiation is accredited to Auspitz [29] and retained by Unna and his school.

COMMENT

The studies on tissue culture by Burrows and others have shown definitely that an active stimulating substance is present in cancer. The nature of this substance has been studied by Burrows, myself and others connected with the laboratory. It has been called archusia. It is soluble in water and is present in high concentrations in all actively growing tissues. These actively growing tissues replace the vitamin B of the food when fed to animals. As cited in previous studies issued from the laboratory, archusia resembles the vitamin B of nature in other ways.

Burrows isolated another substance from less actively growing tissue cultures. He found it to appear with the aging of the culture. In further studies, I have found it to appear concomitantly with the aging of embryos. It is practically absent in malignant tissue. It is found in small quantities in young embryos and in gradually increasing quantities as the embryo ages. It is soluble in fats and proteins, but not in water. It resembles or is a part of the fat-soluble vitamins of nature. It has been called the ergusia.

In the normally functioning tissues of the body, the ergusia is balanced by the archusia. Carcinomatous tissue contains a high concentration of archusia. The archusia will be relatively increased in a localized area if the ergusia has been removed. Ergusia is removed by any agent which dissolves the lipoids of the cell. With its removal the protein constitutents undergo precipitation with resultant formation into a hyaline mass. Thus, all hyalinized tissue is low or entirely stripped of ergusia.

In order that the archusia may be accumulated in ample concentration for active growth, a number of cells must be massed together. Such an area will not become an actively growing one unless the circulation of this mass is also decreased. In an area with an active blood supply, the archusia is washed away by the blood stream.

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28. MacCleod, J. M. H.: Pathology of the Skin, London, H. K. Leeves, 1903.

29. Zeimssen: Handbook of Skin Diseases, New York, William Wood and Company, 1885, p. 103.

Burrows has shown that only a small amount of growth stimulus is necessary to induce a malignant condition in a cellular and poorly vascularized tissue. The growth stimulus accumulates itself in such an area of stagnation.

The ergusia is removed by any lipoid solvent. Its removal leads to the precipitation of the remaining protein constituents into hyalin. Such tissue has lost most of its blood vessels. If masses of intact cells remain in an area of this tissue only a small amount of stimulus is necessary to produce a malignant condition. Such cellular areas remaining throughout a zone of hyalinized tissue offer conditions suitable for independent growth. The amount of stimulus already present in the areas may be ample to cause unrestricted growth.

The histologic changes noted in the various types of precancerous dermatoses and actual carcinoma that have followed these lesions are of this type. Hyalinization, atrophy, decreased vascularization with scattered areas of cell nests comprise the pathologic process of these lesions.

Precancerous lesions have been induced in the skin of the white rat and the development of these lesions observed grossly and microscopically throughout the various stages. The studies are not completed; hence the final development of these lesions will be discussed in a later paper. Thus far, the histologic changes noted correspond to those described for the precancerous dermatoses of man.

ABSTRACT OF DISCUSSION

DR. ENGMAN: I have been watching Dr. Burrow's work now for several years. I can speak only as an observer and not as a part of the staff in his laboratory, but on account of my interest in the hospital and in science, I have tried to understand the work step by step. I have taken an active interest in the discussions which occur from time to time in the hospital.

I feel that he has done a brilliant piece of research work, although we have not yet been able to practically apply his ideas to the patient with cancer. His investigations in animals seem to confirm his theories in relation to at least some phases of the cancer question. This seems to be particularly true of cutaneous cancer as illustrated by cancer forming on ulcers and old inflammatory plaques.

I cannot express to you the intense interest I have had in all of Dr. Burrows' investigations, and believing in him as a scientist, I have great confidence in the fact that he has certainly made a step forward in the proper understanding of the genesis of cancer.

DR. BURROWS: There never was any evidence that cancer could be considered an embryologic process. The striking peculiarity of the cancer cell is that it grows independently as bacteria grow. In the body, cancer grows locally and spreads to lymph glands exactly as bacteria grow locally when introduced to a point and spread to the regional lymph glands. In those areas of the body, such as the face, where bacteria do not tend to spread to the lymph glands, cancer cells also fail to spread to the lymph glands. The embryonal cell, quite the reverse, shows no such independent growth. This growth is as carefully regulated a function as growth is regulated in later life. While many authors have tried

to prove that cancer is the result of specific infection, all attempts in this direction have failed. The peculiarity of cancer is that it does not give an immune reaction and does not cause fever. This would rule out the existence of any foreign parasite. These reactions are now known to be due to foreign proteins. Cancer in these times must be considered an infection of the organism with certain of the organism's own cells.

To understand cancer, it was necessary for us to understand the general conditions which keep the cells working together under normal conditions. Cancer represents a breaking loose of those forces which hold together—represents a declaration of independence by certain cells of the body. To solve this problem, we first undertook a careful study of isolated cells by means of the tissue culture. We then analyzed cancer cells in the same manner and undertook to ascertain how coal tar and other lipoid solvents acted on the tissue of the organism. These studies showed that the only striking difference between normal tissue and cancer tissue is the high lipoid content in normal tissue and the absence of this lipoid in the cancerous tissue.

We studied the nature of this lipoid substance or substances and also how it was deposited in the normal tissue. These studies have indicated certain facts: It is deposited in the yolk of the egg in high concentration; it inhibits growth; it reaches a low level after the disappearance of the yolk of the egg in the growing embryo. This concentration rises again with the laying down of cell members in intercellular substances and it reaches its maximum concentration at maturity. In every case in which we have taken this substance out of the tissues by means of lipoid substances, we have found it impossible to put it back. It is evidently dissolved in the proteins and fats of the tissues. We have also found that this substance is not something foreign to the cells, but it evidently a necessary food constituent for them. It is utilized continually by growing, functioning and otherwise active cells. It is protected from destruction in the normal tissues through the fat-soluble vitamins in the food. Coal tar acts apparently to remove this substance from the tissues. Growth intervenes when the cause has been removed. The growth becomes independent as in cancer when the cause is removed to practically zero. This last fact we deduced by proving that this lipoid is supplied to the body as fat-soluble vitamins. Noting this we conveyed cancer to normal tissue and found an absence of fat-soluble vitamins. The normal tissue contained fat-soluble vitamins in proportion to its stage of development. Applying these facts to roentgenotherapy we noted then that doses of the roentgen ray produce the same hyaline change in tissue that is produced by coal tar and other lipoid solvents. We also noted that moderately small doses of the roentgen ray will protect an animal for a time against a deficiency of vitamin A. More recently, we have noticed that the dietaries high in vitamin A protect the animal receiving large doses of the roentgen ray. In the study of the growth of tissues, we have noted that cancerous tissues die quickly in the cultures unless fed normal tissues. We also found that these growing cells in the culture reduce the inactive tissue used as food to a hyalinized state not different from that produced by coal tar and roentgenotherapy. The cancer growing in the organism reduces the surrounding tissues to a hyaline condition. It evidently gets its food from these adjacent tissues. The roentgen ray removes this lipoid substance necessary for growth. It does not destroy the cancer at once, but always after a considerable latent period. It is possible to explain the action of roentgen ray in producing cancer and destroying cancer by assuming that in the proper dosage it removes normal lipoids so that the cells can grow independently. In the case of cancer,

the roentgen ray removes its lipoid substance to the extent that the cancer cells die from lack of nutrition, stimulated as they are to grow actively.

In following through many precancerous lesions, such as goiter, chronic cystic mastitis, chronic prostatitis and other malignant conditions, it has been evident that any hyperfunction induced may remove this lipoid substance from the tissue and induce growth and cancer. It seems to be plausible to assume that the normal aging of the organism is the result of the gradual removal of these lipoids. One might assume that the cells of the individual would return then in old age to a state of hypergrowth activity. The childishness in the old man has suggested this fact. Cancer could not develop, however, when the entire tissues of the body suffer a uniform decrease in lipoid substance. Cancer could result when the decrease was excessive in one part so that the cells at that point could overpower the remaining cells of the organism. If the decrease were uniform, all cells would be endowed with the normal amount of growth activity.

Cancer again would not develop except in cellular tissue because we found that growth of cells is necessary for growth in the body. The college athlete who dilates his heart dies early and dies evidently from a premature aging of the heart. Similar changes in the tissues of the breast or uterus must, according to these deductions, lead to cancer.

Dr. Pusey: This paper is an extremely desirable feature introduced in this meeting. While not as long, I am just as broad as Dr. Engman and I fully appreciate the work that has been brought forward. I think it is extremely worth while to bring a summary of what has been done in this field. These finer studies of the cellular chemistry of cancer have only been possible since we have known how to grow tissues in vitro. Studies that are being made are leading rapidly to a great increase in our vision, if not leading at once to a clearer picture of the cause of cancer.

To follow such a paper as Dr. Jorstad's requires close reasoning and nobody can critically survey it or appraise it on a hearing of this sort. The substance of it indicates that there are two sorts of substances in the body, an inhibitory substance, ergusia, and a stimulating substance, archusia, which keep things in balance. This seems to be not only reasonable but indicated by our present knowledge of cancer and by the experiments we have had. They are not out of line, however, with facts we know in the natural history of cancer. Roger Williams, in his book on the Natural History of Cancer, long age indicated the probability of overnutrition being a factor in cancer. Williams makes some interesting points and there is some evidence in it that cannot be denied. There are some facts in Jorstad's paper along the lines that Williams has summarized. The solution of the problem probably lies in this direction, and I congratulate the gentlemen on the work they are doing.

I cannot follow Dr. Burrows in his elaborate application of the facts to pathologic processes in general, and in my mind it is weakening their cause to do so. It seems that we have here an extremely valuable study of laboratory results that tend to throw a great deal of light on the study of cancer, but I think it not wise to use this theory to explain too many things.

Dr. Devron: This is an interesting subject. I wonder if it has not occurred to these men doing research work to go a little farther. Dr. Jorstad speaks of two substances; one produces or stimulates cell growth, the other destroys or at least inhibits cell development. I wondered if they thought of using this second substance in the same manner as insulin is being used in diabetes with good results.

DR. GOECKERMAN: I have followed this work for a number of years in the literature and at meetings, and was rather fascinated by developments. I naturally have endeavored to draw my own conclusions. There are two points that have been uppermost in my mind and on these I would like a little more information.

If the points Dr. Jorstad brings out are correct, are we not then using the present method of deep filtered roentgen ray entirely on a wrong principle; and also, has the work progressed sufficiently to warrant feeding diets high in vitamin A with a view of obtaining some clinical benefits, or as a preventative measure?

DR. JORSTAD: At the present time I can answer Dr. Devron in one way only. Our present studies indicate that when once the lipoid substance (ergusia) has been removed from the cell, we are unable by present means, at least, to put it back into the cell. In reply to Dr. Goeckerman, our work does not indicate we are using the roentgen ray on the wrong principle. As a matter of illustration, let me cite the use of deep roentgen-ray therapy in malignant conditions. What we have to do in such a case is to destroy the malignant process and in destroying that process we use enough roentgen ray to produce complete hyalinization of the entire malignant mass. This same might be said of deep lying malignant conditions as well as in superficial malignant conditions, but, of course, we must always administer our roentgen-ray dosage with precaution, remembering that normal tissue must not be sacrificed.

In regard to the second point, we have found that the feeding of diets high in vitamin A along with a well balanced basic diet has prevented to a certain degree the toxicity following roentgen-ray treatment. Then too, this dietary benefits the patient with anemia. At this time, however, we do not feel justified in claiming any benefits from this dietary in the regression of malignant processes.

"WOOD LIGHT" IN DERMATOLOGIC DIAGNOSIS

WITH SPECIAL REFERENCE TO RINGWORM

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When ultraviolet rays from such a source as a mercury vapor or carbon arc are intercepted by a special screen of glass containing nickel oxide, which is almost opaque to ordinary visible light rays, a certain group having a wave-length of about 3,650 angstrom units passes through the screen. This causes fluorescent bodies to give off a light varying with the color of the material, such as red from eosin, yellow from zinc sulphate, blue from quinine sulphate or violet from sodium salicylate.

This so-called Wood light, from the name of the inventor of the glass, has been used for some time in medicolegal work to detect minute spots of blood, semen and other organic fluids, which fluoresce characteristically when present even in minute quantities.

The use of the Wood light in dermatologic diagnosis is to be distinguished from the method which André Broca used—that of passing light through cobalt glass, cutting out all except the blue rays, and making red lesions stand out in black.

In the Wood light, the skin fluoresces faintly with a pale bluish tinge; mucous membranes are deep red, teeth and nails brilliant white and capillaries, red. Petrolatum or hydrous wool fat on the skin fluoresces strongly.[1]

Margarol [2] commenced the study of various dermatoses under the Wood light in July, 1923, and presented his results before the Congress of Anatomists in Turin in April, 1925. Tineal infections were among the conditions studied.

Meyer and Saidman [1] reported further on the Wood light at the meeting of the French Society of Dermatology and Syphilology held on Nov. 12, 1925. They found that in some pruritic conditions of the skin an eruption was visible under the Wood light some days before it was visible by ordinary illumination; this enabled them in some instances, by proper choice of treatment, to prevent the further development of the condition to the point of ordinary visibility. Syphilitic roseola was detected in early syphilis several days before it would have been otherwise. Mention was not made of ringworm.

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1. Meyer and Saidman: Bull. Soc. franç. de dermat. et syph., p. 369, 1925.
2. Margarol, in discussion of Meyer and Saidman (footnote 1).

Roidechel [3] demonstrated the fluorescent phenomena of the skin under the Wood light before the Vienna Dermatological Society on June 10, 1926, but the report does not mention what dermatoses were exhibited.

On Nov. 15, 1926, Vigne [4] published a paper in the *Marseille Médicale,* in which he stated that by the aid of the Wood light in detection of ringworm infection he had been able to eradicate the disease from an orphanage where it had been present for thirty years.

Before a meeting of the Section of Dermatology of the Royal Society of Medicine on March 17, 1927, A. C. Roxburgh [5] demonstrated the use of the Wood light in detecting hairs infected by ringworm.

I believe this gives in chronologic order a fairly complete review of the reports which have appeared up to date of the use of this valuable addition to diagnostic procedure in dermatology.[6] Two additional papers are mentioned in the "Cumulative Index," which are in journals inaccessible to me.

Roxburgh was of the opinion that the fluorescence was only pathognomonic in the case of hairs that were infected. But Knowsley Sibley [7] reported that he had observed its appearance on the skin of the hairy scalp and on the forehead when microscopic examination confirmed the existence of ringworm fungus in the skin.

I recently studied and treated a group of eleven children from an institution, who were infected with *Trichophyton capitis* of *Microsporon* variety. All were under 7 years of age, and some were intellectually subnormal. Some of this group had extensive infection, and epilation was produced successfully with the roentgen rays. In other children with more or less extensive infection, it was impossible to control the irradiation sufficiently for this method to be applied with safety to patient and attendants, and the use of thallium salts was considered.

With some of this group, however, it was possible to determine quickly and accurately, by examination under the Wood light, the extent and exact location of the infection, and to treat the scalps successfully with local applications. Thus, it was possible to avoid overlooking any small points of infection not yet detectable by ordinary examination and to guard against insidious spreading to other parts. In the cases in which epilation was produced, any fringe of hairs remaining could

3. Roidechel: Dermat. Wchnschr. **83**:1482 (Oct. 2) 1926.

4. Vigne, in Roxburgh, A. C.: Brit. J. Dermat. **39**:351 (Aug.-Sept.) 1927.

5. Roxburgh, A. C.: Brit. J. Dermat. **39**:351 (Aug.-Sept.) 1927.

6. Fuhs: Dermat. Ztschr. **50**:16 (March) 1927. Vigne: Wood's rays in Diagnosis of Tinea Tonsurans and Favus, Presse méd. **35**:339 (March 16) 1927.

7. Knowsley Sibley, in discussion on Roxburgh, A. C.: Brit. J. Dermat. **39**:351 (Aug.-Sept.) 1927.

be examined quickly and recurrence avoided. Finally, several patients in whom ringworm infection was suspected were examined; however, the infection was not found to be present. In one of these, microscopic examinations of several hairs was made but the fungus was not found, and the subsequent course of this and of other cases made me feel that the Wood light is a reliable means of detecting ringworm infection.

It is also my experience that the dry, slightly scaly, denuded patches, freed from all traces of petrolatum and similar substances, fluoresce brightly with a turquoise blue, while the individual follicles in such patches, whether they contain stumps visible with the hand lens or not, appear as brilliant points of light on the greenish-blue patches. This appears to confirm Knowsley Sibley's observation that skin infiltrated with fungus fluoresces characteristically. In some cases, it was interesting to note that a typically fluorescent area extended onto the forehead beyond the border of the hair where nothing but fine and scanty scaling could be seen in ordinary light. The wavy border of such an area was its brightest part.

While treating these patients, I was consulted by a man who had an itching, papular eruption of the bearded area which had been present for several months. He had been treated by several physicians, but the condition had not been diagnosed, nor had he experienced much relief. The symptoms were so mild that I was surprised on examining hairs extracted from a few small, slightly inflamed papules to find them packed with fungus. I promptly examined the face under the Wood light. Only a few hairs still in situ showed fluorescence, and this was of a doubtful quality; moreover, the value of the examination was diminished by the fact that I knew ringworm was present. I am of the opinion, however, that had I been able to wait a day or two for the hairs to grow longer, the ringworm infection of the beard would have been easily distinguishable from ordinary coccogenic sycosis.

In epidermophyton infection (no cases were examined with infection of the nails), I have been unable to get any characteristic appearance under the Wood light, beyond the pearly white appearance of the thick scale, which is also seen in psoriasis and in other scaly lesions, and which is not pathognomonic.

The technic of examination is simple. A water-cooled lamp is preferable, although an air-cooled lamp can be used by placing the Wood lens over the window in the shutter. The room must be darkened. The Wood glass is held far enough away from the head, covering the lens or opening in the shutter, to permit the observer to see clearly the area of the scalp which is covered by the shadow cast by the glass. In this dark field, infected hairs, even single ones, will stand out, fluorescing brilliantly in a spectacular fashion. At the same time bare, scaly patches

appear bright turquoise. The contrast with surrounding parts is striking. Old areas from which infection has been cleared up are distinguished by a rich violet tinge, visible when the hair is very short.

COMMENT

The advantages of such a method of examination for ringworm are evident. Instead of the time-consuming operation of extracting hairs or making scrapings where infection is suspected, digestion in caustic potash solution and examination under the microscope, the hairs or infected patches become evident in situ immediately. Thus other conditions producing clinical appearances similar to ringworm may be excluded promptly, and persons who have become infected by contact with the patients are identified before other clinical signs have become apparent. Cases in which infection is still limited to a small area, so that a cure may be attempted by topical application rather than by general epilation, can be singled out. After treatment has been applied by means of the roentgen ray or epilation produced by thallium salts or by local remedies, examination under the Wood light may disclose hairs which have escaped, and thus prevent "relapses" which otherwise sometimes occur and which are not disclosed until they have produced clinical symptoms.

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BISMUTH ARSPHENAMINE SULPHONATE

A NEW SYNTHETIC DRUG FOR INTRAMUSCULAR USE IN THE TREATMENT OF SYPHILIS *

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There has been an unusual amount of discussion of the treatment of syphilis during the last few years. Many of the articles have related to new preparations and methods of treatment. This flurry of reports of therapeutic suggestions, modifications and results has in part, at least, been precipitated by dissatisfaction with the efficacy of the use of arsphenamine in association with mercury or bismuth in many cases of acute syphilis. This is often not the result of the drugs themselves but of their injudicious, insufficient or untimely application. Long periods of observation of a large series of cases from well organized special clinics have shown that in approximately 70 per cent of the cases of acute syphilis, cure may be brought about if the prescribed courses of treatment are completed. This entails a continuous period of treatment over many months without intervals of rest. In justice to these results, it is to be noted that the greatest percentage of failures are observed in those cases in which the patient not only fails to report for treatment at the regular stated intervals, but does not even complete the required number of treatments. The physician who, as part of his every day practice, treats patients who have syphilis probably does not obtain as high a percentage of cures as has been reported by the various clinics. Among the factors responsible for this discrepancy are the economic status of the patients who acquire syphilis in their youth, the inconvenience of the ideal course of treatment, the lack of enthusiasm with which the physician undertakes the task, the fear of acute and the dread of late reactions from the drug, and the patient's indifference to treatment. There are few physicians engaged in the treatment of patients with syphilis who will deny that there is a place in their therapeutic armamentarium for a drug or a combination of drugs which will equal, if not exceed, in therapeutic value those in use at the present time, and which, at the same time, may be given more economically, more easily and without provoking acute and delayed reactions. If this new drug will stimulate the resistance mechanism of the patient rather than overwhelm it, a decided step forward will have been made in the treatment of syphilis.

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* From the Section on Dermatology and Syphilology, The Mayo Clinic.

In reporting my experience with one of these new preparations, I wish to emphasize forcibly the fact that, next to the thorough clinical study of well controlled cases, the most important factor in such efforts at evaluation is time. Observation periods extending over a decade are essential in appraising any method of treatment suggested for syphilis. Nevertheless, I believe it is justifiable to report a clinical experience with a new drug if the laboratory experimental evidence has shown that the drug will fulfil the conditions mentioned in the preceding paragraph. In making this report, no effort will be made to evaluate the remedy in terms of cure.

It is with this idea in mind that I cite the first eighteen months' experience with bismuth arsphenamine sulphonate in the Mayo Clinic. According to Raiziss,[1] who synthesized this drug, it is probably tris (sodium 3 amino 4 hydroxyphenylarseno-N-methylenesulphonate) dibismuth, corresponding to the empiric formula $C_{21}H_{21}O_{12}As_2Na_3S_3N_3Bi_2$.[2] He expressed the belief that the bismuth in this compound is bound to the arseno group in the same manner as silver, gold and platinum in their respective coordination compounds of arsphenamine. In the laboratory investigations, the drug was found to have a high spirocheticidal effect in rabbits and apparently a low degree of toxicity when injected intramuscularly. The arsenic content varies from 12 to 15 per cent and the bismuth from 23 to 25 per cent. The drug is for intramuscular use only.

Raiziss [2] reported that this drug is tolerated intramuscularly by white rats in doses of about 500 mg. for each kilogram of body weight. The successive intramuscular administration of from 5 to 10 mg. for each kilogram causes the complete disappearance of the spirochetes within two or three days after the first injection. Lesions do not recur, and with slightly higher doses complete curative effect can be demonstrated in the animals by the lymph node transfer test carried out in accordance with the method of Brown and Pearce.[3]

From July, 1926, to January, 1927, 1,145 injections of the drug were given to eighty-five patients in the Section on Dermatology and Syphilology of the Mayo Clinic. These cases comprise two groups: cases of acute syphilis and the so-called Wassermann-fast type. The cases of acute syphilis included patients in various phases of the disease, from the serologic negative chancre stage to the recurrent mucous membrane

1. Raiziss, G. W., in discussion on Stokes, J. H., and Chambers, S. O.: J. A. M. A. **89**:1504 (Oct. 29) 1927.

2. Personal communication to the author from Dr. George W. Raiziss, Philadelphia.

3. Brown, W. H., and Pearce, Louise: Relation of the Treponema Pallidum to Lymphoid Tissues in Experimental Syphilis, J. Exper. Med. **35**:39 (Jan.) 1922.

and cutaneous types. In the asymptomatic Wassermann-fast group were included those patients to whom intensive treatment had been given previously and in whom the spinal fluid tests and cardiovascular examinations were negative. In this report are included only those cases in which a series of four courses was completed, consisting of eight injections to the course, or a total of thirty-two injections.

Stokes and Chambers [4] recently reported their experiences with the drug in a series of 204 cases presenting various manifestations of syphilis.

METHOD OF ADMINISTRATION

The drug is given intramuscularly in 0.2 Gm. doses. The contents of the ampule are readily dissolved in 1 cc. of sterile water, to which 2 minims (0.1 cc.) of a 2 per cent solution of butyn is added for local anesthetic effect. In my early experience with the drug, moderate discomfort was complained of by several thin women; however, since the addition of butyn, it has never been necessary to discontinue the drug because of pain after the injection. The injections have been given in the buttocks, according to the technic of Stokes.[5] In cases of acute syphilis, four courses of treatment were carried out, each consisting of eight injections. The injections were given every fourth day, and a rest period of four weeks (twenty-eight days) was permitted between each course. There were six patients who did not receive any other treatment than the injection of the drug, while the remaining fourteen took mercurial inunctions in varying amounts during the intervals between courses.

ACUTE SYPHILIS GROUP

Serologic Manifestations.—The period during which the drug has been used does not permit of clinical deductions, although the serologic studies, particularly in cases of acute syphilis, are worthy of comment (table 1). Of the seventeen cases in which the Kolmer tests of the blood were positive when treatment was started, a negative Kolmer test was reported in one at the end of the first course, in fourteen at the end of the second course, and in one after the third course. In case 7 there was a serologic relapse, and the Kolmer test remained weakly positive. Table 1 calls attention to the fact that there was only the one case in which the patient had a serologic relapse during the period of eighteen months in which the drug was used.

In the three cases in which treatment was started in the serologically negative chancre stage, the Kolmer tests of the blood have remained negative throughout. In one of these cases, to be discussed in more detail, exfoliative dermatitis developed before the prescribed number of courses was completed, but the serologic reaction is still negative.

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4. Stokes, J. H., and Chambers, S. O.: Bismuth Arsphenamine Sulphonate: Clinical Observations on a New Arsphenamine Synthetic in the Treatment of Syphilis, J. A. M. A. **89**:1500 (Oct. 29) 1927.

5. Stokes, J. H.: A Technic of Intramuscular (Epi-Fascial) Injection, M. J. & Record **99**:730 (April 30) 1921.

TABLE 1.—*The Blood Wassermann (Kolmer) Reaction in the Cases of Acute Syphilis*

TABLE 1.—*The Blood Wassermann (Kolmer) Reaction in the Cases of Acute Syphilis*

Case	Age	Sex	Type of Syphilis	Duration of Infection	Wassermann Test: On Admission	Wassermann Test: At End of First Course	Rest Interval: Days	Rest Interval: Mercury Inunctions	Wassermann Test: At Beginning of Second Course	Wassermann Test: At End of Second Course	Rest Interval: Days	Rest Interval: Mercury Inunctions	Wassermann Test: At Beginning of Third Course	Wassermann Test: At End of Third Course	Rest Interval: Days	Rest Interval: Mercury Inunctions	Wassermann Test: At Beginning of Fourth Course	Wassermann Test: At End of Fourth Course
1	26	F	Chancre (extragenital)	3 wk.	8/26/26 4 4	9/20/26 3 2	28	..	10/18/26 Negative	11/ 8/26 Negative	21	..	.....	1/17/26 Negative	40	..	3/ 1/27 Negative	4/ 1/27 Negative
2	27	F	Mucous patches; condylomata lata	.....	8/23/26 4 4	.....	74	30	12/17/26 4 4	3/31/27 Negative	92	36	6/30/27 Negative	8/ 5/27 Negative	94	40	11/ 8/27 Negative	12/ 7/27 Negative
3	25	F	Chancre.....	3 da.	8/17/26 Negative	10/ 6/26 Negative	91	40	1/ 7/27 Negative	2/ 9/27 Negative	47	40	3/31/27 Negative	4/25/27 Negative	214	40	11/16/27 Negative	
4	38	M	Chancre.....	4 da.	10/29/26 Negative	11/20/26 Negative	47	14	1/ 5/27 Negative	1/24/27 Negative	69	30	4/ 5/27 Negative	4/22/27 Negative	79	52	6/23/27 Negative	7/11/27 Negative
5	22	M	Mucous patches; condylomata lata	.....	11/12/26 4 4	11/ 2/26 4 4	29	..	.....	2/10/27 Negative	48	..	3/16/27 Negative	4/16/27 Negative	Discontinued treatment			
6	30	M*	Chancre.....	.....	11/13/26 Negative	12/ 7/26 Negative												
7	32	F	Condylomata lata.....	.....	12/15/26 4 4	1/20/27 4 4	42	40	3/ 2/27 4 3	4/11/27 Negative	85	42	6/24/27 1 –	8/10/27 1 – (Kahn 4)	58	30	10/ 7/27 2 1 (Kahn 4)	10/31/27 1 –
8	35	F	Involuting grouped follicular lesions	4 mo.	1/14/27 4 4	2/ 9/27 3 1	25	25	3/ 8/27 Negative	3/30/27 Negative	27	27	5/ 7/27 Negative	5/28/27 Negative	62	40	8/ 1/27 Negative	8/24/27 Negative
9	32	M	Cutaneous grouped follicular lesions	2 wk.	1/22/27 4 4	2/14/27 4 4	24	24	3/11/27 4 4	4/ 2/27 3 –	24	24	5/ 7/27 Negative	5/28/27 Negative	63	28	8/ 1/27 Negative	8/24/27 Negative
10	48	F	Papules on palms; condylomata lata	77 da.	2/ 3/27 4 4	2/25/27 4 4	30	..	3/28/27 3 1	4/19/27 Negative	28	..	5/20/27 Negative	6/ 9/27 Negative	29	..	7/ 9/27 Negative	7/27/27 Negative
11	56	M	Papular mucous patches	65 da.	2/ 3/27 4 4	2/28/27 4 4	30	..	3/30/27 4 4	5/16/27 Negative	37	..	7/16/27 Negative	.....	63	..	9/16/27 Negative	10/20/27 Negative
12	31	M	Recurrent papular lesions; periostitis	8 mo.	5/19/27 4 4	6/15/27 4 4	43	40	7/30/27 4 1	8/20/27 Negative	31	50	9/27/27 Negative	10/24/27 Negative	27	40	11/22/27 Negative	12/18/27 Negative
13	61	F	Maculopapular lesions	12 wk.	2/16/27 4 4	3/11/27 4 4	31	..	4/12/27 3 2	5/13/27 Negative	77	..	7/28/27 Negative	8/18/27 Negative	59	..	10/16/27 Negative	11/11/27 Negative
14	42	F	Chancre.....	3 wk.	2/22/27 4 4	3/16/27 4 4	38	30	4/26/27 Negative	5/25/27 Negative	46	30	7/13/27 Negative	8/ 8/27 Negative	64	40	10/11/27 Negative	11/11/27 Negative
15	28	M	Recurrent secondary lesions; annular lesions; mucous patches; condylomata lata	12 mo.	6/ 1/27 4 4	6/27/27 4 4	35	26	8/12/27 2 1	9/ 1/27 Negative	40	29	10/11/27 Negative	11/ 8/27 Negative	31	30	12/ 9/27 Negative	1/12/28 Negative
16	26	M	Papulosquamous lesions	5 mo.	7/22/27 4 4	8/22/27 4 4	33	16	9/26/27 Negative	.....	36	10	11/29/27 Negative	12/21/27 Negative	30	20	1/20/28 Negative	2/26/28 Negative
17	35	M	Chancre.....	26 da.	3/10/27 4 4	4/ 4/27 1 –	29	29	5/ 6/27 Negative	6/ 2/27 Negative	63	40	8/ 4/27 Negative	8/29/27 Negative	61	42	10/31/27 Negative	11/24/27 Negative
18	23	F	Maculopapular lesions; mucous patches	2½ mo.	6/16/27 4 4	7/14/27 4 4	29	26	8/11/27 4 3	9/ 5/27 Negative	41	22	10/17/27 Negative	11/15/27 Negative	37	29	12/22/27 Negative	1/21/28 Negative
19	29	M	Chancre.....	.....	7/18/27 4 4	8/ 6/27 Negative	30	12	9/ 8/27 Negative	10/ 7/27 Negative	26	20	11/15/27 Negative	11/29/27 Negative	28	24	12/27/27 Negative	1/27/28 Negative
20	29	M	Involuting chancre; large papular lesions	6 wk.	7/ 1/27 4 4	7/20/27 4 4	32	..	.....	9/18/27 Negative	36	..	11/ 4/27 Negative	11/21/27 Negative	43	..	1/ 3/28 Negative	1/27/28 Negative

* Severe exfoliative dermatitis developed several weeks after last injection.

The results of examinations of the spinal fluid are summarized in table 2. In the group with acute syphilis, abnormalities were present in the spinal fluid in cases 7, 15 and 20. In case 7, the spinal fluid continued to show evidence of activity in spite of treatment. It is to be emphasized, however, that this patient did not adhere to instructions and allowed intervals of forty-two, eighty-five and fifty-eight days to elapse during the first four courses. In case 15, the recurrent type of lesions on the skin and mucous membrane were evident when the pateint was

TABLE 2.—*Serology of the Spinal Fluid in the Cases of Acute Syphilis*

		Spinal Fluid				
Case	Treatment Started	Date	Wassermann Test	Nonne Test	Cells	Colloidal Benzoin
1	8/23/26	1/ 5/27	Negative	Negative	1	000 000 220 000 000
2	8/25/26	5/ 3/27	Negative	Negative	2	000 000 333 000 000
3	8/17/26	1/17/27	Negative	Negative	1	000 000 231 000 000
4	10/30/26	10/21/26	Negative	Negative	1	000 000 100 000 000
		6/28/27	Negative	Negative	1	000 000 321 000 000
5	11/12/26	1/11/27	Negative	Negative	5	
6	11/13/26*					
7	12/15/26	3/ 4/27	Negative	Negative	7	220 000 000 000 000
		7/ 9/27	Negative	Negative	3	000 000 221 000 000
		10/ 7/27	1----	Negative	14	111 002 321 000 000
8	1/19/27	1/29/27	Negative	Positive	6	000 000 333 200 000
		5/14/27	Negative	Negative	1	000 003 333 200 000
9	1/19/27	2/ 7/27	Negative	Negative	1	000 000 002 000 000
		5/14/27	Negative	Negative	1	000 000 333 000 000
10	2/ 1/27	4/ 1/27	Negative	Negative	1	000 000 333 221 000
11	2/ 3/27	7/ 8/27	Negative	Negative	3	000 000 000 000 000
		10/17/27	Negative	Negative	3	
12	5/19/27	6/10/27	Negative	Positive	3	000 003 332 000 000
		8/23/27	Negative	Positive	2	000 001 333 100 000
13	2/15/27†					
14	2/22/27	5/10/27	Negative	Negative	1	000 003 321 000 000
15	6/ 1/27	6/21/27	4 1---	Negative	29	000 001 121 000 000
		8/ 8/27	Negative	Positive	19	000 002 321 120 000
		10/15/27	Negative	Positive	25	000 003 333 100 000
		12/14/27	Negative	Negative	3	000 000 331 000 000
16	7/22/27	10/17/27	Negative	Negative	3	000 000 332 000 000
17	3/10/27	3/29/27	Negative	Negative	2	000 000 332 000 000
		5/31/27	Negative	Negative	8	000 003 311 000 000
		11/ 1/27	Negative	Negative	2	000 002 221 000 000
18	6/16/27	7/ 5/27	Negative	Negative	2	000 000 100 000 000
19	7/18/27	8/ 8/27	Negative	Negative	1	000 002 332 000 000
		11/17/27	Negative	Negative	2	
20	7/ 1/27	7/30/27	Negative	Positive	32	
		11/19/27	Negative	Positive	70	002 212 333 000 000

* Spinal fluid not examined because of exfoliative dermatitis.

† Spinal fluid not examined because of patient's age.

admitted to the clinic and pleocytosis was present in the spinal fluid. The chancre had been recognized one year previously, and at that time two injections of arsphenamine had been given, but no treatment had been undertaken since. Asymptomatic neurosyphilis was present at the time I undertook treatment, and the spinal fluid has reverted to normal under the treatment. Case 20, likewise showed pleocytosis (32 cells) when the spinal fluid was examined, indicating the early onset of neurosyphilis. Further studies of the spinal fluid are warranted in these three cases before further deductions can be made.

Clinical Effects.—The drug has apparently a slower healing effect than arsphenamine. My observations in this aspect were similar to those of Stokes and Chambers. The induration of the chancre in one instance was still palpable seven weeks after treatment was started, and in one case in which there was an extensive papular syphilid, the papules still presented slight induration when the patient returned for the third course. In the superficial types of syphilids, the involution was somewhat slower than is usually seen following the intravenous use of arsphenamine.

Spirocheticidal Action.—In studying the spirocheticidal action of the drug, dark-field examinations of material from the chancres were made daily after the initial injection, until *Spirochaeta pallida* was no longer demonstrable. This occurred, on the average, seventy-five hours after the first injection; the maximal period in which they were still motile was one hundred and eight hours after the first treatment. The mucous patches and condylomata lata showed that the organisms were slow in disappearing, the period varying from five to seven days. The effect of the drug in this respect was decidedly slower and, accordingly, offers a less desirable remedy from the standpoint of public health. However, it is hoped that this specific effect, the clinical evidence of which appears slowly, may result in a higher therapeutic index than that of arsphenamine. In the one case which I reported previously as showing recurrence in the mucous membrane, the serologic reaction has remained negative and similar recurrences have not occurred during the last year while treatment was not being given.

Local Reactions.—Until the local anesthetic was added a few patients complained of some discomfort following the injections, but since then the local reactions have been slight. A trained technician has given all the treatments. Occasionaly, a palpable nodule is noted for several days after the injection. In one case, a sterile abscess developed in the buttock two weeks after the third injection of the third course; it healed readily following incision and drainage. In my experience, the local reactions have been practically negligible.

Constitutional Reactions.—The immediate and late systemic reactions have also been mild. In two cases there were delayed nitritoid reactions approximately six hours after the injection, which necessitated the discontinuance of the drug. We have not seen acute nitritoid reactions such as those reported by Stokes and Chambers.

One case of severe exfoliative dermatitis, the only cutaneous reaction noted in the eighty-five cases, developed three weeks after the completion of the first course. A communication from the patient's home physician reported that the dermatitis was of the dry type and that four months later the administration of a small dose of bismuth was immediately

followed by a severe recurrence of the dermatitis. The patient undoubtedly has a marked idiosyncrasy for metals and probably bismuth especially. One patient developed severe gingivitis.

In our clinic, we have not as yet encountered as complications, jaundice, hepatitis, hemorrhagic encephalitis, infection of the kidneys, neuritis, syphilitic neuro-recurrences or blood dyscrasia following the use of this drug.

An incidence of one exfoliative reaction in a series of 1,145 injections of the drug is a high rate. Stokes and Chambers did not encounter any cutaneous complications in a series of 4,200 injections, so that deductions as to the cutaneous toxicity of the drug are not justified in my short series. However, from the collateral evidence available at this time, the drug appears to have a low degree of toxicity.

THE WASSERMANN-FAST GROUP

The results in the Wassermann-fast group have been unsatisfactory, although somewhat incomplete. In each of six cases, three courses of the treatment have been completed; in two of these, the Kolmer test on the blood reversed to negative, only to revert to positive one and two months later.

STUDIES IN ABSORBABILITY

A roentgenogram of the site of injection was made in a number of cases in an effort to study the rate of absorption. In solution and in the powdered form, the drug gave a distinct shadow, but a shadow was not noted on any of the plates made two hours after the injection of 1 cc. of the bismuth solution. When the powder was dissolved in 8 cc. of sterile water, a faint shadow was noted two hours after injection. When injected under the fluoroscope, a shadow was cast which disappeared within fifteen minutes. In the dilution recommended, the drug is apparently diffused rapidly following intramuscular injection. In none of the patients of whom roentgenograms were made were palpable nodules present at the former site of injection.

SUMMARY

My experience [6] with bismuth arsphenamine sulphonate during the last eighteen months has been encouraging. The acute signs of syphilis have been slower to disappear than is usual with the other preparations of arsphenamine, and the spirocheticidal effect has likewise been slower. Contrary to Cole's experience,[7] practically no pain has been encountered

6. O'Leary, P. A., in discussion on Stokes, J. H., and Chambers, S. O.: J. A. M. A. **89**:1504 (Oct. 29) 1927.

7. Cole, H. N., in discussion on Stokes, J. H., and Chambers, S. O.: J. A. M. A. **89**:1504 (Oct. 29) 1927.

from the injection, although a sterile abscess did develop in one case. In another case, severe exfoliative dermatitis developed, but other examples of cutaneous reactions have not occurred in this series. The serologic studies of the blood in cases of acute syphilis have been gratifying, although further examinations of the spinal fluids are necessary before deductions can be made concerning its value in early neurosyphilis. The low incidence of recurrence, serologic relapses and the severer sequelae which occasionally attend the intramuscular administration of other arsphenamine preparations, have been striking.

The question whether it is necessary to give mercury in one form or another in conjunction with this drug is not as yet determined, although Stokes and Chambers used the drug alone and the six cases in my series in which mercury inunctions were not given progressed as well, clinically and serologically, as those in which mercury inunctions were carried out.

SYPHILIS D'EMBLÉE

REPORT OF TWO CASES *

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In the special literature concerning blood transfusion there are few accounts of syphilitic infection in patients produced by transfusion. It seems to me, therefore, that the description of such a syphilitic infection is of great interest. Two cases are reported here; the first one occurred in a patient at Moscow, and the second in a patient at Nancy. These two cases solve the double question concerning the infectiousness of human syphilitic blood and the possibility of hematogenous syphilitic infection, syphilis without ulcus durum, the so-called "syphilis d'emblée."

REPORT OF CASES

CASE 1.—A widow, aged 33, entered the State Hospital of Venereal Diseases on March 22, 1927, complaining of severe headaches and arthralgia with aggravation in the evening and also of an exanthem on the body. The past history showed that the menstrual periods had been irregular since she was 15 years old. She married at the age of 27, but could not have coitus because of severe vaginismus. Her husband was ill during their entire conjugal life, and died from tuberculosis five years after marriage; she nursed him during his illness and, not being strong herself, was exhausted when he died. She suffered from metrorrhagia from six to eight months every year, with short intervals of complete amenorrhea. She finally became so weak that, at the hospital where she had been a regular patient during the last ten years, she was advised to have a blood transfusion. Transfusions were given twice (on Nov. 25, 1926, and Feb. 3, 1927). The results were so encouraging that she left the hospital on Feb. 4, 1927. Later in the same month she suddenly noticed a large exanthem on her body. The character of this exanthem was not recognized at the hospital (of internal diseases) where she presented herself, and she was told to come a few days later. She was seen by a dermatologist on March 18, who made a diagnosis of secondary syphilis; the lesions were macular. There was a pronounced cubital adenitis. The Wassermann reaction of the blood was 4+. After the diagnosis became clear, a search for the source of infection was undertaken. The patient (who is an intelligent person) said that she had not had coitis. She was hospitalized from November, 1926, to Feb. 4, 1927, under conditions that made coitus impossible, and there was the history of vaginismus. An adenitis was found at the cubital region, no trace of it being seen in the inguinal region. The second blood donor (there were only two transfusions) was known as an old donor who had had many serologic tests of the blood with negative results; his blood was transfused Feb. 3, 1927, and on February 7 an exanthem had already appeared. The

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* Translated from Russian by E. J. Shapiro, M.D., Vendispansery of Grishino, Donbass, Ukraine, U. S. S. R.

* From the State Venereal Institute of Moscow.

first donor (a sister of charity A. F.) was seen first. A Wassermann test of the blood made nineteen days before the transfusion gave negative results; the clinical examination made the same day by a physician (specialist in internal diseases) gave the same result. A second blood serum test and clinical verification of the donor's health was not made before the transfusion. She did not come to the hospital until March 16, 1927. At this time, nothing suspicious was found clinically, but the Wassermann reaction was 2+; there were also Sachs-Georgi and Meinicke reactions. A second test of the serum made some days afterward gave the same result. At last, on May 10, she was sent to the State Venereal Institute. A detailed search was made for some syphilitic symptoms and a third test made of her blood serum. The Wassermann reaction was strongly positive; clinically, there was a slight cubital adenitis and some papules were concentrated at the region of the trochanter major. At biopsy, the diagnosis of the syphilitic origin of the papules was confirmed. Thus, a diagnosis of a late reciduation of secondary syphilis could be categorically made. It is clear that when her blood was taken for the first Wassermann test (nineteen days before she gave her blood for transfusion) she was on the threshold of syphilis (on Nov. 6, 1926, the Wassermann reaction was negative; on March 16 and 20, 1927, positive, and on May 10, 1927, strongly positive).

In explaining the picture of the infection, the pronounced cubital adenitis and the complete exclusion of the possibility of sexual contagion are evidence that this was a case of true syphilis d'emblée.

Case 2 (Spielman-Morrel).—One morning, a physician, on getting up, noticed an exanthem on his body, the source of which he could not explain. He went to a dermatologist, who recognized a syphilitic roseola. The Wassermann reaction was positive twice. There were no signs of the primary lesion, and there was no doubt about the impossibility of sexual contagion. The source of the infection was soon discovered. Some time before, the physician had been called to see a pregnant woman who had suddenly begun to bleed; the bleeding had resulted in an abortion. There was such a loss of blood that an immediate transfusion was ordered, and since the husband did not give his blood, the physician generously offered his own. During the operation, the blood stream in the needles stopped, and a cleaning with a mandrin was necessary; apparently, the needle from the woman's vein was inserted into the physician's vein. Shortly afterward, the woman died, and the case had been nearly forgotten, when two months later the physician noticed the infection. As the woman was dead, it was impossible to determine in which stage of contagion she was at the moment of her death. On being questioned, the husband explained that six years ago, he had had a sore on his penis; after four injections of arsphenamine and some other remedy, the sore had disappeared, and he had ceased treatment. His blood serum gave a 2+ reaction. Three miscarriages had occurred during their conjugal life, the third one being fatal. It is necessary to point out that except in the cubital region there was not any adenitis on the physician's body when the examination was made and the macular lesion diagnosed, so the history of this contagion is also clear.

The question concerning the infectiousness of the syphilitic blood was still of great interest in the time of Ricord. It is only since the beginning of experimental syphilology that the question became more clear. Now, when blood transfusions are so frequent, especially in the United States, where there are clinics with 2,000 donors, from which 300 are

able every day to give their blood (as at the Mayo Clinic), it becomes a question of great and actual interest, and it is clear that a careful investigation of the serologic and clinical picture of the health of every donor is to be obtained from the hospitals where the transfusions are largely given. For the security of the persons to whom the transfusions are given, there must be a strict investigation of the donor by a syphilologist not less than every month, with an obligatory blood serum test before the transfusion.

LYMPHOGRANULOMATOSIS INGUINALIS

REPORT OF A CASE OF TWENTY MONTHS' DURATION, WITH AUTOPSY OBSERVATIONS *

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AND

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In 1913, Nicolas, Durand and Favre [1] reported a series of cases of inguinal adenitis to which they gave the name lymphogranulomatosis inguinalis, and which they described as a specific genital disease, a clinical entity which had heretofore been observed in tropical countries and which was called "climatic bubo" or "strumous buboes of the groin." During the following ten years, further literature on the subject did not appear. In 1923, following a second report by Nicolas and Favre, numerous cases were recognized, and there was a belief that the disease might have been brought into Europe by the colonial troops during the recent war. Considerable confusion soon arose in the literature because of the similarity in terminology to other forms of lymphogranuloma, so that cases of granuloma inguinale and even Hodgkin's disease were confused with it in certain reports. Numerous careful studies have been made in Europe on a large number of cases, so that it is now definitely established as a clinical entity. In July, 1926, Pardo-Castell [2] reported several instances of this disease in Cuba, and recently a series of thirty-two cases of this condition has been reported by Frei and Hoffman of Breslau. The literature on the subject up to 1925 has been completely reviewed by Fischl.[4]

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1. Durand, Nicolas, J., and Favre: Bull. et mém. Soc. med. d. hôp. de Paris **35**:274 (Jan. 31) 1913.

2. Pardo-Castello, V.: Lymphogranulomatosis Inguinalis, Arch. Dermat. & Syph. **14**:35 (July) 1926.

3. Frei, Wilhelm, and Hoffmann, H.: Arch. f. Dermat. u. Syph. **153**:179, 1927.

4. Owing to the fact that this condition is so frequently confused with granuloma inguinale, the following points in the differential diagnosis are mentioned:

   1. Granuloma inguinale is primarily a disease of the skin; lymphogranulomatosis inguinals first involves the lymph nodes and only secondarily the skin.

(Footnote continued on following page)

Lymphogranulomatosis inguinalis is a contagious venereal disease of unknown etiology, transmitted by sexual intercourse. The initial lesion appears on the glans penis or the prepuce in the male or on the vulva in the female as a small, indurated, nontender, herpetiform lesion with a slight serous discharge. This lesion is said to be absent in some cases. The incubation period following coitus is from one to six weeks. Following this, there is a period of quiescence in which the painless genital sore is the only manifestation. In several weeks the inguinal glands on one side, more rarely on both sides, become enlarged, indurated and painful. At first they remain discrete, but soon a periadenitis develops, the glands become matted and the overlying skin becomes involved, appearing bluish red and indurated. Fluctuating areas develop which on aspiration yield yellow, purulent fluid. The picture is now one of inguinal adenitis which has gone on to suppuration. The iliac glands become enlarged and tender in over half of the cases reported, but suppuration, on the contrary, does not occur. The skin over the mass breaks down, and with the relief of tension, pain and tenderness subside. A chronic, ulcerating, secondarily infected area develops with numerous sinuses in the skin. Healing is extremely slow, and sometimes no change is noted for many months.

Constitutionally there are no symptoms during the period of incubation and the initial lesion, but during the stage of suppuration, before rupture or the institution of drainage, there may be symptoms suggestive of septicemia, with high temperature, delirium and stupor. The blood picture varies; in some cases there is a marked increase in the leukocytes, in others a normal count and in still others leukopenia. There is usually slight anemia.

Recently Frei and Hoffmann reported a skin test for this disease which gave a typical reaction in twenty of twenty-four cases clinically diagnosed as lymphogranulomatosis inguinalis. Their method is to remove by needle puncture a small quantity of the purulent material from the involved inguinal nodes; to dilute this from five to ten times with a sodium chloride solution; heat for two hours at 60 C. the first day and for one hour the second day, and to inject intracutaneously

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2. Donovan bodies can be demonstrated in the majority of cases of granuloma inguinale; these bodies are not found in lymphogranulomatosis inguinals.
3. Patients with granuloma inguinale usually respond quite favorably to treatment with tartar emetic; lymphogranulomatosis inguinalis is notoriously refractive to any therapy.
4. The intradermal test of Frei and Hoffmann is presumably specific for lymphogranulomatosis inguinalis.
5. The histologic picture of lymphogranulomatosis inguinalis is considered characteristic by most authors.

0.1 cc. of the diluent. In persons suffering from the disease, a strong inflammatory reaction ensues, which continues to the formation of a papule. In none of the controls was a positive skin test obtained. It is interesting to note, however, that a number of the patients with lymphogranulomatosis reacted positively with vaccines prepared from a variety of known organisms, such as *Bacillus coli, B. pseudodiphtheriae,* etc.

In the attempt to determine the etiology of this disease, a large number of investigators have employed subcutaneous, intramuscular, intraperitoneal, intratesticular and intracerebral injections of the

Fig. 1.—Ulceration in left inguinal region, sixteen months after appearance of lesion.

purulent material and of diseased lymph node particles in a large variety of experimental animals. For the most part, these experiments have been unsuccessful. Gamna,[5] De Bella [6] and Virgillo [7] alone have been successful in producing lymph node involvement in their experimental animals. The specific bacteriology of this disease is unknown. Among the organisms isolated may be mentioned pseudodiphtheria

5. Gamna, Carlo: Rev. med. Sevilla, July, 1924, p. 30; Arch. di. pat. e clin. med. **3**:305 (Sept.) 1924; Presse méd. **32**:2041 (Dec. 3) 1924; Arch. sc. med. **46**:31, 1923; Gior. di biol. e. med. sper. **1**:336 (April) 1924.

6. De Bella, A.: Pathologica **16**:37 (Jan. 15) 1924.

7. Virgillo, F.: Ann. di med. nav. **31**:1 (Jan.-Feb.) 1925.

and streptothrix-like organisms, *Micrococcus paramelitensis* and various amebas.

There is general agreement about the histologic picture. There is diffuse granulation tissue infiltration with numerous plasma cells, small stellate and branching abscesses rich in endothelial-like cells and containing also an occasional giant cell, and small particles (so-called "gamna bodies") in the protoplasm of large mononuclear cells.

Fig. 2.—Left inguinal ulcer removed at autopsy. Note the openings of the superficial sinuses just beyond the left margin.

REPORT OF CASE

History.—On March 25, 1927, the patient, a white man, aged 73, applied for treatment at the Medical Clinic of the New Haven Hospital, complaining of a

discharging ulcer in the left groin. Mild diabetes mellitus had previously been diagnosed, for which the patient had been treated. Three years elapsed between the last consultation and the time the patient reported with this condition. According to the present history, a swelling in the left groin appeared about two months after sexual intercourse with a negro woman, who was said to be "horribly diseased" (unproved). The lesion commenced as a small, tender, painful tumor in the left groin, which had gradually increased in size. This tumor was incised by a physician, and a considerable amount of purulent material was obtained. Following this incision, the wound began to extend along its edges, a purulent, foul-swelling material being discharged. The affected area was incised several times during the next six months to allow drainage, and finally, under gas and

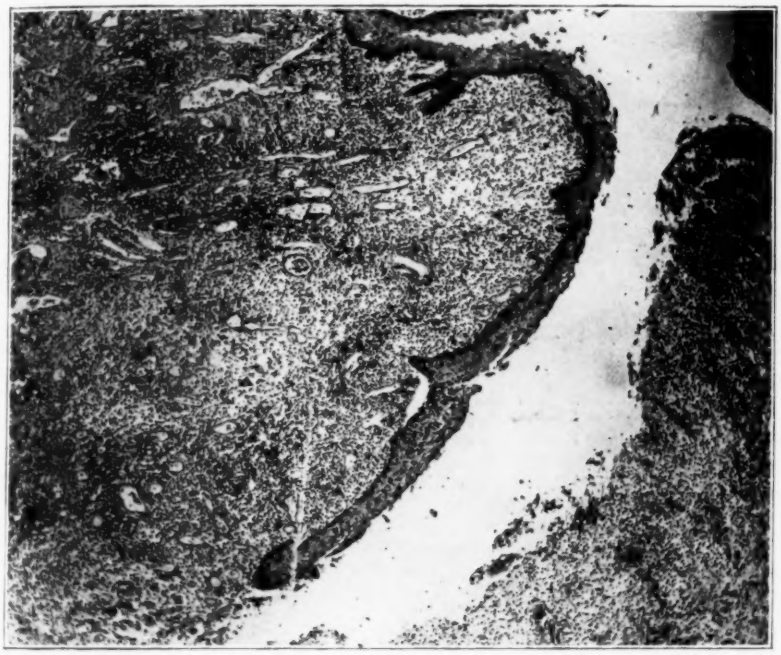

Fig. 3.—Edge of ulcer; × 50.

oxygen anesthesia, the entire ulcer was curetted. The ulcer continued to spread, and the patient reported to the dispensary.

Physical Examination.—Nothing of particular interest was found, except the local lesion. This lesion consisted of an ulcerated area about 6 by 3 cm. situated just below Poupart's ligament on the left side, and extending downward to the junction of the scrotum and perineum. The edges were not raised and were rather firm to the touch. The base of the ulcer had extended through the skin and superficial fat to the fascia, and was covered with a foul, greenish-yellow, purulent material. The inguinal glands on the right side were enlarged and hard but not tender. No enlargement of the iliac glands was made out. The results of the remainder of the physical examination were consistent with the patient's age.

Laboratory Examination.—The test for blood sugar showed 132 mg. per hundred cubic centimeters. Roentgen-ray examination of the pelvis was negative.

Biopsy (on four occasions) showed nothing more than chronic and acute granulation tissue. Three stains for Donovan bodies were negative, two being from purulent discharge and one from biopsy tissue. The Wassermann reaction for both antigens was negative on three occasions, one negative reaction being obtained after a provocative dose of arsphenamine; the Kahn test was negative. Urinalysis revealed a faint trace of albumin; sugar, 1 plus, a few hyaline casts and a few white blood cells. The blood count showed: red blood cells, 4,770,000; white blood cells, 8,480; polymorphonuclears, 73 per cent; lymphocytes, 20 per cent; large mononuclears, 5 per cent; eosinophils, 1 per cent; basophils, 1 per cent and hemoglobin, 90 per cent. Cultures from the ulcer revealed *B. proteus* and a gram-positive diplococcus. Guinea-pig inoculation with tissue removed from the margin of the ulcer was negative.

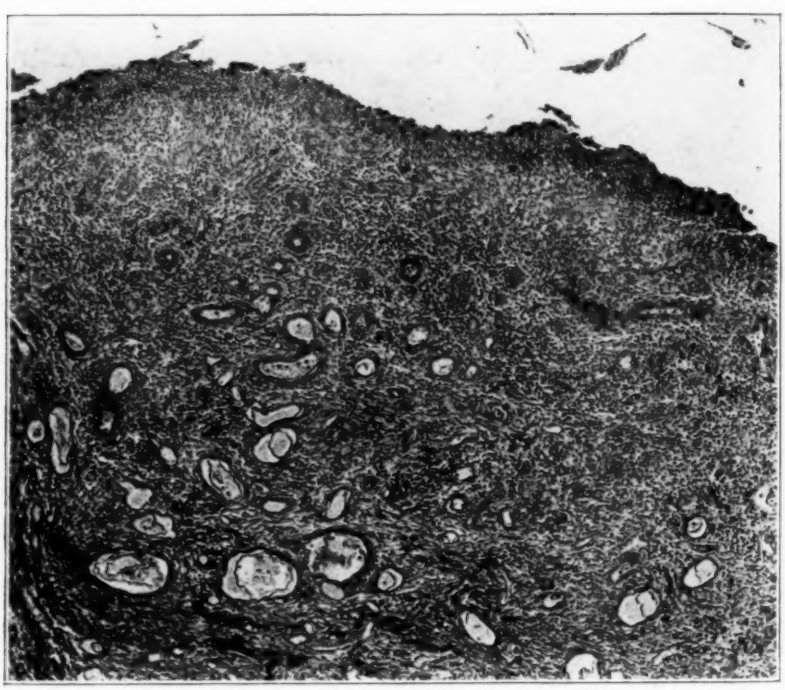

Fig. 4.—Base of ulcer showing the layer of necrotic leukocytes which lines it. In the young, organizing tissue are present numerous polymorphonuclear leukocytes and eosinophilis, as well as large mononuclear cells with large vesicular nuclei and pale blue cytoplasm; × 75.

Treatment and Course.—The treatment in this case was unsuccessful. At the outset it was felt that because of the extension of the suppuration into the perineum, the scrotum, the groin and the thigh, together with the poor general condition of the patient, surgical intervention was inapplicable. Before the diagnosis was made, the patient was given a thorough course of ultraviolet light therapy, exposures being given three times a week and gradually increased from 1 minute at a distance of 18 inches to 15 minutes at 8 inches. The patient's skin did not tan well as he was of the blond Nordic type. Improvement in the lesions was not noted. At the same time, he was given two injections of antimony

thioglycolamide under the mistaken belief that the condition might be granuloma inguinale. The patient reacted rather unfavorably, and improvement did not occur. On July 22, emetin hydrochloride, 0.02 Gm., was given intravenously; these injections were continued twice weekly until September 6, the dosage being increased on the third injection to 0.04 Gm. From September 6 to September 22, emetin was continued hypodermically, 0.03 Gm. being given daily. During this period, roentgen-ray exposures were also instituted, the dosage being 40 milliampere minutes; aluminum filter 1.4; kilovolt 132; distance 10 inches; this treatment was given on September 10 and repeated on September 26, the dosage consisting of 35 milliampere minutes. Again there was no improvement, and to prove therapeutically that the lesion was not some bizarre form of syphilis, two doses of neoarsphenamine were tried, without any evidence of improvement.

Fig. 5.—Base of ulcer. Many dilated lymphatics are seen in an area of organization; × 75.

During the twenty months of treatment, no obvious change was noted in the character of the lesion. There was little tendency to the formation of granulation tissue or to epithelialization of the area, and the discharge remained profuse. Some of the small sinuses healed, only to be followed by new ones in the adjacent tissue. On October 14, the patient committed suicide by inhaling illuminating gas.

Necropsy.—The body had been embalmed several hours before the postmortem examination began, therefore, bacteriologic examinations were not made at this time. The following subsidiary observations were noted at autopsy: healed mitral and aortic endocarditis, pleural and peritoneal adhesions, right hydrocele and adenoma of prostate. In the left inguinal region, there was an extensive, irregular, ulcerated area, the greatest diameter of which lay parallel to Pourpart's ligament

and measured 10 cm., the shortest diameter measured 5 cm. The edges of this ulceration were elevated and undermined. Numerous sinus tracts, the openings of which lay outside the boundaries of the ulcerated area, ran superficially parallel to the surface of the skin for a varying number of centimeters, to find an exit beneath the elevated edges of the ulcer. Such sinus openings were present on both the perineal and the inner surfaces of the left thigh. The base of the ulcer was covered by a foul, profuse, dirty gray, necrotic discharge. Enough of the tissue in this region was ulcerated so that the left inguinal nodes were no longer present. The whole involved area, with a margin of several centimeters of apparently uninvolved skin was removed in toto. In doing this, it was found that the muscles of the thigh and perineum, the aponeurosis of the left external oblique muscle, as well as Poupart's ligament, were not involved in the ulcerative process, which

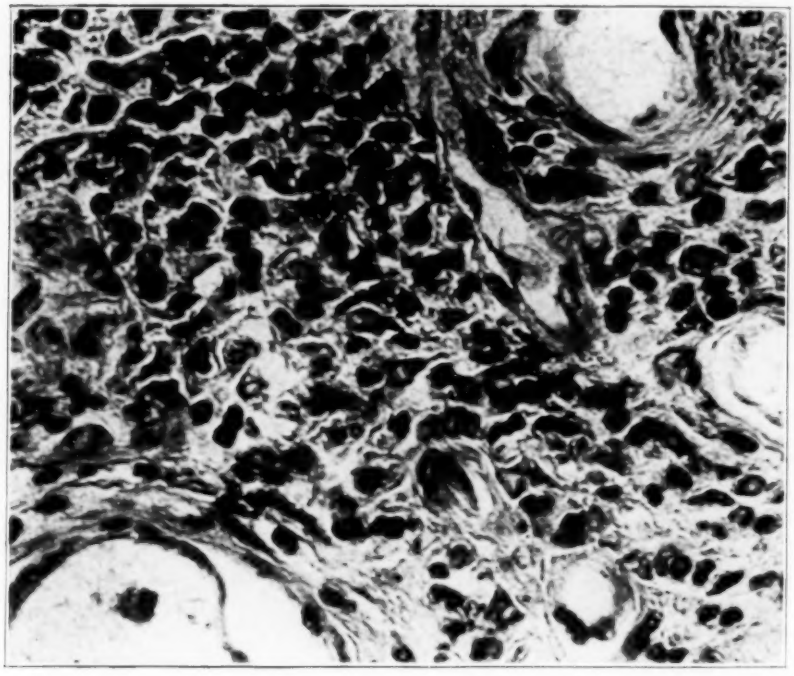

Fig. 6.—Higher magnification of figure 5, showing large mononuclear cells, many of which contain phagocytosed blood pigment; × 600.

extended only to the deep fascia and not beyond. There were no sinus tracts to any of the pelvic bones. The inguinal lymph nodes on the right were palpable and definitely enlarged, but none of the other superficial nodes were enlarged. These right inguinal nodes were succulent, and measured from 0.5 to 1 cm. in diameter, and on section showed hemorrhagic centers surrounded by grayish, translucent cortices. There was no penile scar or urethral discharge. Enlarged lymph nodes were not found anywhere in the peritoneal cavity or in the mediastinum. The spleen was slightly enlarged, weighing 300 Gm. and measuring 15 by 9 by 5 cm.

Microscopic Observations.—Microscopic sections of the enlarged inguinal lymph nodes found on the right side failed to show a clear differentiation between

the cortex and the medulla. Instead, the cells forming these nodes were diffusely and rather loosely scattered in the delicate reticulum. Small, deep-staining lymphocytes were the predominating cells, although numerous polymorphonuclear leukocytes were also present. Mast cells were particularly abundant in the loose connective tissue of the lymph node capsules. Here and there were mononuclear and polymorphonuclear eosinophilic cells, and there was an occasional polymorphonuclear cell with basophilic cytoplasm containing large, purple granules. Large mononuclear cells with pale blue cytoplasm and deeper blue nuclei, often containing small, dark-staining round granules in their cytoplasm, were encountered. Multinucleated cells and mitotic figures were rare.

The epithelium at the edge of the ulcer of the left inguinal region did not show any evidence of hyperkeratosis. The edges were elevated above the crater-

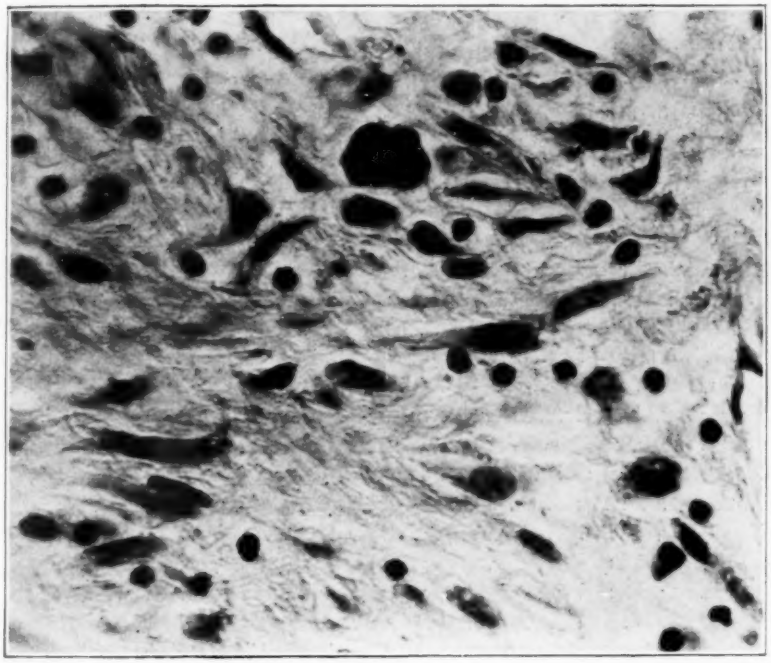

Fig. 7.—Hyalinized connective tissue in which lie elongated, spindle-shaped fibroblasts, large mononuclear cells with eccentric nuclei and pale blue cytoplasm and a multinucleated giant cell; × 600.

like base, which was covered by several types of cells, chiefly polymorphonuclear neutrophils, in various stages of disintegration. Beneath this necrotic exudate were numerous polymorphonuclear neutrophils, eosinophils, occasional mast cells and large mononuclears with pale, vesicular nuclei. These large mononuclear cells had a scant, pale blue cytoplasm, in which small, round, deep-staining granules were not infrequently present. Budding capillaries and young, elongated fibroblasts with spindle-shaped vesicular nuclei were present near the surface of the ulcer, whereas deeper in the subcutaneous tissue, dense, hyalinized, fibrous tissue extensively infiltrated with small lymphocytes formed the predominating picture. In several places, widely dilated vessels, apparently lymphatics, lined

by a thin layer of endothelial cells, were found beneath the surface of the ulcer. Old blood pigment, some of it lying free in the connective tissue and some phagocytosed within large mononuclear cells, was scattered throughout. Multinucleated giant cells were common. In the deep subcutaneous fascia were numerous perivascular infiltrations of mononuclear cells with basophilic cytoplasm and eccentric nuclei. There were relatively few polymorphonuclear leukocytes in this region. Numerous microscopic sections of the enlarged right inguinal lymph nodes and of the ulcerated area were stained with Gram's, Giemsa's, Levaditis' and carbol-fuchsin stains for organisms, all with negative results.

SUMMARY

A case of chronic suppurative inguinal lymphadenitis is reported. Because of the obscure etiology of this disease, a positive diagnosis cannot be made. The clinical picture and the pathologic observations, however, point strongly to the diagnosis of lymphogranulomatosis inguinalis, and because it is the first report of this disease in the United States and the only case which has come to our notice in which an autopsy has been performed, this report is submitted.

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DERMATOSIS PAPULOSA NIGRA*

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AND
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A clinical description of this condition has been given by one of us (A. C.)[1] in a previous article.

The disease seems to be extremely common in negroes in Jamaica and Central America, but we have seen cases in negroes in this country who have never been abroad.

In a well marked case, a large number of black or dark-brownish papules, somewhat cupoliform or at times flattened, are seen on the face, principally on both malar regions, while they are usually rare or absent on the lower parts of the face and chin; a few may be present on the forehead. They are not pruriginous or painful. The maximum diameter of each papule varies between 1 mm. and 4 or 5 mm. In early cases, the surface of the papule is smooth, but later it may become slightly rough and verrucoid. At times, two or three papules appear during youth, often at the age of puberty or soon after. One of us has seen these papules present in small numbers in boys and girls of from 14 to 18 years of age. The condition gradually becomes more marked; the papules increase in number and in size the older the patient becomes, and it is common to see middle aged men and women with their faces studded with these black papules.

The sections for histologic study were fixed in Zenker's fluid; paraffin blocks were made and the specimen were cut and stained with hemotoxylineosin. The epithelium is somewhat shrunken and the stratum corneum is rather poorly represented, except that keratinization of the surface is marked in certain areas. The stratum granulosum seems increased in amount. The pars papillaris of the derma is greatly increased in density presenting a keloid appearance. In many areas this forms a protuberant and branching projection which assumes a papillomatous arrangement although the layers of surface epithelium have not proliferated. There is some increase of the melanin in the deeper layers of the epidermis but no evidences of chromatophores are seen.

The etiology is unknown, but it would seem that race is a predisposing etiologic factor: the condition is extremely common in Jamaican negroes; however, we have seen cases in mulattos and one in a European

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who was born and brought up in Jamaica. We have also seen cases in negroes who were born in Louisiana.

The condition is to be differentiated from ordinary juvenile verrucae, from senile warts and from moles. In recent and fairly recent cases, the papules do not have the appearance of ordinary juvenile verrucae, lacking the well marked verrucose surface and pruritus common to this condition, nor do they have the appearance of senile warts which are much larger and have a greasy surface. These papular lesions do not

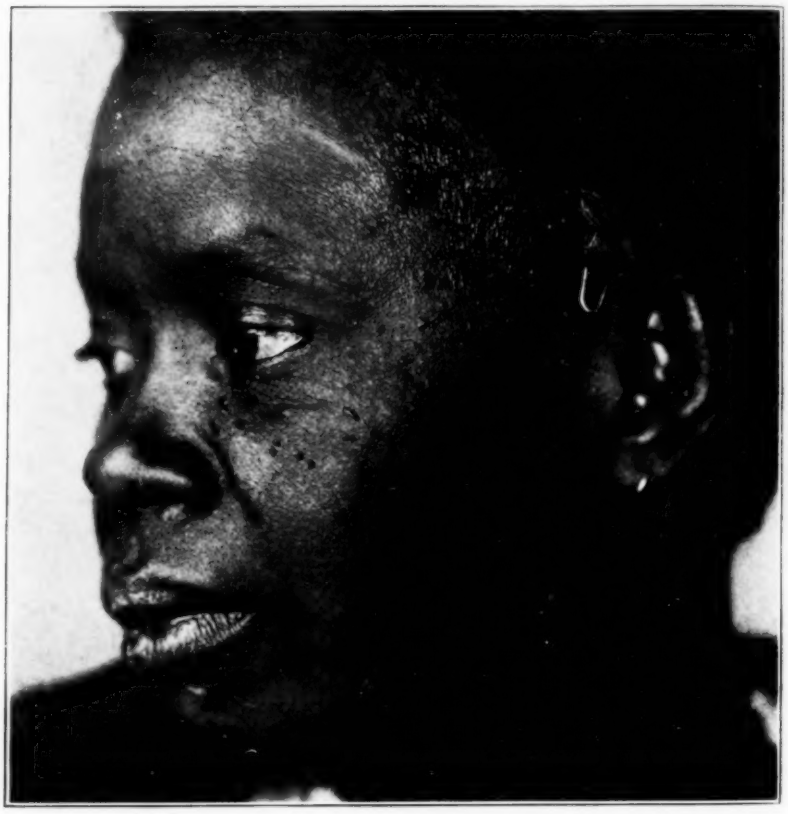

Fig. 1.—Black papules appearing on the face.

seem to be of the nature of moles as, apparently, they are not congenital; they usually develop at puberty or soon after.

The condition does not influence the general health of the patient, but has no tendency to spontaneous cure; in fact, as a rule, it becomes progressively more marked with age.

Treatment is unsatisfactory. The papules may be destroyed by using the micro-burner, or a strong solution of formaldehyde, but as a rule small white marks remain permanently, and to this the colored people object more than to the black papules.

Fig. 2.—Black papules appearing on the forehead and malar regions.

Fig. 3.—Section through papule; × 400.

Fig. 4.—Showing the histologic characteristics under low pressure; × 135.

POROKERATOSIS (MIBELLI)

A REPORT OF ITS OCCURRENCE IN SIX CHINESE PATIENTS *

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The peculiar skin condition to which Mibelli gave the name porokeratosis appears to be more common in the Orient than in the West. The earliest series of cases was reported in 1893 from Majocchi's clinic in Italy by Mibelli [1] and Respighi,[2] but Neumann [3] probably saw a case in 1875, describing it as "a previously unknown skin condition (dermatitis circumscripta herpetiformis)." Until 1905, almost one half of the known cases had occurred in Italy (Mibelli [4]); other cases having been reported from America [5] and Germany.[6] Since then cases have more frequently been reported from France,[7] America,[8] Germany [9] and

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England,[10] but a proportionally larger number has come from Japan and Korea.[11] So far cases have not been reported from China. This paper covers a series of six cases in Chinese patients seen during the course of two years in Peking.

REPORT OF CASES

CASE 1.—A laborer, aged 31, presented himself at the clinic on April 19, 1926, for relief from a skin condition which he said had been present for one year. One younger brother was known to have a similar condition, but no other member of his family was afflicted.

The lesions on the skin started in the bend of the right elbow as small hard rings. They extended slowly and coalesced, while at the same time many new ones appeared in other situations. From time to time the hard rings fell off, leaving smooth, pigmented lesions, but after some days the rings again formed in their original situation. Pain and itching had not been present at any time. The patient's previous health had always been good.

Examination showed a healthy looking Chinese man of the working class. On the buccal mucosa were two smooth, nonelevated, oval patches of brown pigmentation, measuring approximately 1 by 0.5 cm. An exostosis about the size of a pea was present on the posterior portion of the hard palate. There were no lesions of the buccal mucosa which resembled the skin lesions in any way. Both palms showed large callus-like hyperkeratoses.

The lesions were peculiarly distributed on the limbs and trunk as if following some systematized arrangement. Individual lesions were mostly oval and arranged in linear formations with the long axis of the oval following the lines of distribution. The arrangement did not follow the lines of main nerve trunks, nor were lesions limited to areas of terminal distribution of peripheral nerves. They were not accurately symmetrical, but there was a distinct tendency to involvement of corresponding areas on the two sides of the body (fig. 1).

In the right antecubital fossa were three parallel streaks. These were made up of several isolated, irregularly oval lesions, each of which showed a well marked horny wall with a flakelike scale at the bottom of its internal slope and marked atrophy in the central area.

In a similar situation on the left arm were three lines made up of confluent lesions with only slightly raised and scaling margins and pigmented centers.

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A long and broad patch caused by the confluence of many lesions occupied the front of the right shoulder. Here the wall was irregular and scaling, but appreciable. The central area was deeply pigmented.

Two almost symmetrical groups ran obliquely across the chest, one on each side, from the anterior axillary fold to the lower end of the sternum. These groups consisted of smooth, pigmented and somewhat atrophic lesions without an appreciable wall.

Over each scapular region were linear groups of lesions with scaling walls and increase of pigment in the central areas.

The face and neck showed more irregular groupings of slightly pigmented lesions with moderately elevated walls. These lesions were accurately confined to the left side, stopping abruptly at the midline both in front and behind.

A small linear patch was present on the right forearm and a second on the left leg. Here the lesions were large with a marked wall and scale and with atrophy and loss of pigment in the enclosed area.

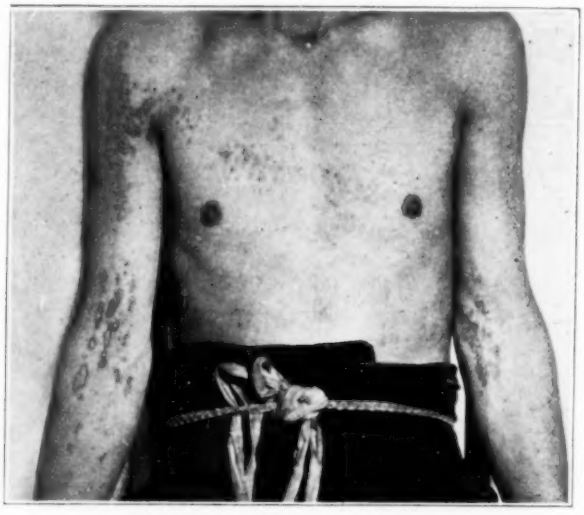

Fig. 1 (case 1).—Systematized distribution of pigmented and depigmented lesions.

By pulling forcefully on the scale at the base of the wall with a pair of forceps, the whole of the wall attached to the scale could be torn out, leaving a deep bleeding excavation into which the wall had apparently fitted, or from which it had grown.

Material was obtained for histologic examination by the removal of the whole of one well developed lesion, with marked wall and scale, from the right forearm (fig. 2), and a second smaller lesion, without a well marked wall, from the front of the chest.

Case 2.—A Chinese printer, aged 30, said that his paternal grandmother, his father and two of his father's sisters had varying degrees of the same condition of the skin. He was married and had three children, all under 10 years of age, in none of whom he had noticed lesions similar to his own. A small wart had been present on the little finger of the right hand since birth. Other lesions had appeared at irregular intervals throughout his life. These started as small wart-

like elevations and extended peripherally, clearing in the center, leaving a black, horny ring which enlarged to the size of about 2 cm. in diameter and then remained stationary. The horny elevations fell off from time to time, leaving behind a scaling and pigmented ring. There had never been any itching or other subjective symptom in connection with these lesions.

Lesions were confined to the hands, arms and face, and were roughly circular and entirely irregular in distribution. A large majority measured approximately 2 cm. in diameter. Others were smaller. The margins consisted of fine sinuous walls, raised about 1 mm. above the surface of the skin; they were deep black and horny. The inner slope of the wall regularly showed a small white flake at its base. Atrophy of the skin of the central area was marked in some instances,

Fig. 2 (case 1).—Lesions of the front of the wrist. The larger lesion was removed and is described in biopsy 1.

and pigment was diminished in amount. There were two lesions the size of a pea on the back of the left hand, which did not show any central depression and were verrucose throughout (fig. 3). There were no lesions of the mucous membrane. The patient refused to submit to biopsy, and was seen on one occasion only.

CASE 3.—A Chinese merchant, aged 27, had been troubled by an eruption on his face of seven years' duration. This had started when he was 20 years of age, with the simultaneous appearance of a large number of round lesions, which had extended slowly in size to the average diameter of 5 mm. and had then remained stationary. None had ever disappeared, but new lesions appeared from time to

time and went through the same process of evolution. The disease had previously not been known in his family, but recently a younger brother (case 4) had been similarly affected.

When first seen, the lesions in this patient were almost entirely confined to the face. They varied in size from 1 to 5 mm., the majority being of the larger size. The walls were only slightly raised, not deeply pigmented and of a scaling rather than of a horny nature. The central areas were slightly pigmented and atrophic (fig. 4). One lesion occurring within the hairy scalp had a prominent and horny wall, with the typical white flake at the bottom of its internal slope and with a completely alopecic central area. There was a small group of four deeply pigmented lesions in the left pectoral region. A lesion on the buttocks had developed

Fig. 3 (case 2).—Deeply pigmented rings with atrophic centers.

in a manner entirely different from the others. A mild degree of itching had always been present, and the surface was constantly raised and covered with thick white scales. The lesion had extended rapidly to 3 cm. in diameter but had since been stationary.

At the time of the first investigation, a lesion was removed from the right eyebrow for examination.

When examined again five months later, two new lesions were found, one in the right popliteal fossa, and the other just below the left knee. Each had a diameter of 3 mm., with a well marked wall and a scaling but not atrophic center. The other lesions had not altered materially.

After another period of three months, the patient was seen again and another new lesion, which he had first noticed soon after his last examination, was found on the right forearm. This was now about 2 mm. in diameter and scaling throughout. The lesion was removed for histologic examination.

Case 4.—The younger brother of the patient just described was brought for examination at my request. He was a school boy, aged 17. The eruption was said to have been present in his case for the past one and a half years. The first lesion noted had occurred on the right cheek. This had been destroyed by some caustic agent, and its site was marked by a hard erythematous nodule. New

Fig. 4 (case 3).—Small ringed lesions on face.

lesions were still appearing from time to time, but none had reached any extensive size. Careful examination revealed only ringed lesions situated in a line down the left side of the nose. These varied in size from that of a pinhead to that of a lentil. They were pigmented throughout, and had a slightly elevated and rough margin, with a depressed center. There was one lesion on the back of the right calf, which was said to have been present for only one month. This was a sharply defined keratotic papule the size of a pinhead. It did not have a depression in the center, and the surface was scaling throughout.

Biopsy was not permitted.

Case 5.—This was the first case in which a real difficulty in diagnosis occurred. The patient was a hawker, aged 48, the only child of healthy parents, and he had one living and healthy child of his own. He had been aware of skin lesions for twenty-three years. A single red, scaling, mildly pruritic lesion, 2 cm. in diameter, had appeared below the right knee when the patient was 25 years old. It extended gradually, and new lesions of a similar nature continued to appear from time to time. All of the lesions probably started as warty growths, but as they did not cause any trouble until they reached a larger size, the patient was not aware of the original appearance. As they extended, there was a tendency for the lesions to coalesce to form large plaques. The large lesions were red, scaling and itching throughout the course of their development, but some remained isolated and formed rings with depressed and atrophic centers.

Fig. 5 (case 5).—Thickened plaques in front of knees resembling psoriasis.

About five years before examination, the patient had venereal exposures followed by a penile sore, which healed in a few days without treatment. One year later, all the skin lesions became acutely inflamed and intensely itchy. Scratching produced ulceration with a serous discharge. The ulcers healed, and the intensity of the inflammation subsided in one month. This reaction was strictly confined to the areas of the original dermatosis.

The general distribution of the skin lesions was of interest, as they showed a definite predilection for the extensor surfaces of the body. Large polycyclic plaques covered both buttocks, the front of both knees (fig. 5) and the backs of both ankles. Smaller and less confluent lesions were distributed over the extensor surfaces of both arms, and minute ringed lesions were found on the face and in the clavicular regions.

The large lesions were polycyclic, sharply demarcated from the healthy skin and showed a raised epithelial flake at the margin, but there was no keratotic wall. The skin was thickened, dusky red and coarsely scaling. In areas in which pressure and friction did not occur (sides of the ankles and calves) the epithelial overgrowth was papillomatous. Scales and papillae could be removed by scraping, in some instances leaving punctate hemorrhages similar to those produced by scraping a psoriatic lesion. There was diminution of sweating in the affected areas, and only an occasional thickened hair stump could be found.

The blood serum gave a positive reaction to both the Wassermann and the Kahn tests, but evidence of active syphilis could not be found on physical examination. Alteration in the skin lesions was not observed after intravenous injections of neoarsphenamine, nor was there any improvement after long and thorough application of ointments containing chrysarobin and salicylic acid. Severe febrile reactions induced by the intravenous injection of typhoid vaccine did not produce any change in the lesions.

Psoriasis of an unusual nature was considered in this case, but the failure to respond to strong keratolytics and febrile protein reactions seemed to exclude this as a possible diagnosis. The clinical impression of porokeratosis was borne out by the histologic examination of four specimens removed from lesions in different stages of development.

Case 6.—During the routine examination of a patient in a sanatorium near Peking, an eruption typical of porokeratosis was found. This patient, aged 46, had been aware of skin lesions since the age of 17. They had all appeared more or less simultaneously and had not extended in size nor increased in number since that time. The patient had been separated from his family since childhood, but he said that he thought his mother had a similar condition.

The lesions of this patient were small horny rings, none larger than 1 cm. in diameter, occurring mostly on the face, with only occasional lesions widely scattered over the trunk and buttocks and none on the extremities. They were round in outline, and did not show any tendency to coalesce. The walls were raised, horny and dark brown and could be scraped down to the level of the skin or pulled out leaving a raw and bleeding trench. The skin in the enclosed area was slightly atrophic and showed less pigmentation than the normal skin.

HISTOLOGIC STUDIES

Biopsy 1.—*Well-Formed Annular Lesion on the Wrist in Case 1 (Larger Lesion in Fig. 2).*—In all sections examined, the wall of the lesion was found to be formed by a parakeratotic and hyperkeratotic spur raised above the level of the surrounding skin. Examination of serial sections showed that it always sprang from sweat ducts. The cells lining the duct involved were large and hyaline, resembling those of the malpighian layer of the epidermis. As the duct passed through the epidermis it became surrounded by parakeratotic cells, and an irregular formation of keratohyalin occurred both in the depths of the epithelium and as a spur surrounding what appeared to be a continuation of the sweat duct above the normal level of the epidermis. In some sections the spur seemed to be composed of two portions (figs. 6 and 7), one parakeratotic and definitely related to a duct seen in that section, and the other hyperkeratotic and derived from an adjacent parakeratotic sweat duct. Apart from the thickening of the duct for some distance into the cutis, the sweat gland was not altered.

Within the lesion, there was a mild degree of hyperkeratosis on an acanthotic epithelium with a complete loss of pigment from its basal layer. Collections of lymphoid cells occurred in the superficial layers of the cutis, largest and most

Fig. 6 (biopsy 1).—Low power view showing both walls of outcrop from lesion.

Fig. 7 (biopsy 1).—Division of wall: the inner part is parakeratotic and surrounds termination of sweat duct seen in lower part of figure; the outer part is hyperkeratotic and is derived from a distally placed sweat duct. Infiltration with small round cells.

dense at the base of the limiting wall, where the blood vessels were dilated, but they occurred also as small collections around the sweat ducts in the central area. These collections of cells were strictly confined to the upper layers of the cutis and did not extend downward along the sweat ducts nor upward into the interpapillary pegs. Sweat glands were normal in the central area. Hyperkeratosis was not present in the occasional hair follicle seen.

Biopsy 2.—*Small Pigmented Lesion on the Chest in Case 1.*—Clinically this lesion had no appreciable wall, and under the microscope it was frequently difficult to ascertain the limits of the lesion. In some sections, however, the margin was marked by a cellular sweat duct with a small hyperkeratotic ring surrounding

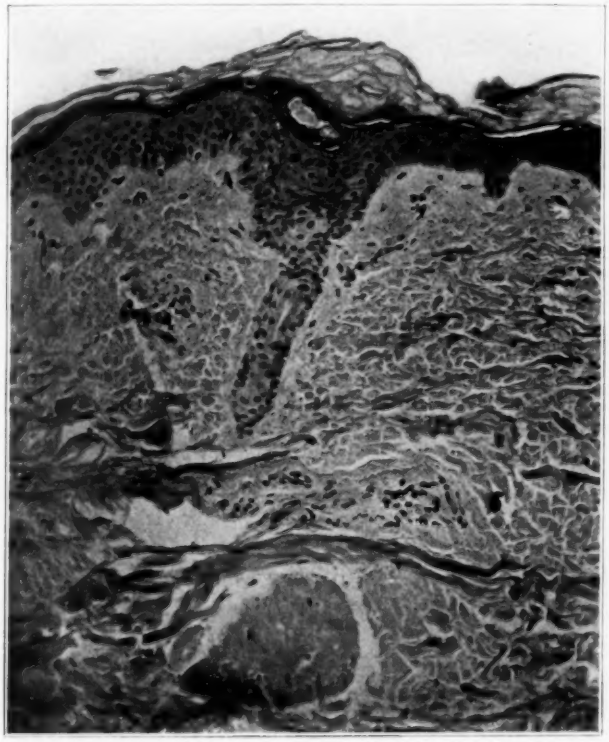

Fig. 8.—Cellular sweat duct representing margin of lesion in biopsy 2. Note the loosely arranged epithelial layer within lesion, to left of the figure.

its outlet onto the surface of the skin (fig. 8). The round cell infiltration was minimal both at the periphery and in the central area. Within the lesion, the cells of the mucous body were loosely arranged, making the whole epithelium somewhat deeper than that of the healthy skin. The basal layer was irregular and its cells loaded with pigment. Large pigment-laden wandering cells occurred throughout the cutis, especially near the blood vessels. Sweat glands were normal, but the sheaths of the lanugo hairs showed hyperkeratosis with small plugs in the mouths of the follicles.

Biopsy 3.—*Ringed Lesion of the Eyebrow in Case 2.*—The margin of this lesion was found to be related definitely to the hair follicles, which were both

large and numerous throughout the section. In some instances, a small parakeratotic spur was found to be growing from a sebaceous gland into a dilated hair follicle (fig. 9). In other places, the wall was formed by an irregular hyperkeratotic mass which took its origin from three or four follicular systems. All the hair follicles within the lesion were hyperkeratotic almost to their bases. There was marked infiltration of round cells below the margins of the lesion and around the hair follicles. Sweat glands were not destroyed, but some ducts showed a cellular arrangement in their transepithelial course.

Biopsy 4.—*Papular Lesion of the Forearm, Known to Be Less Than Three Months Old, in Case 2.*—The epithelium within the lesion was hyperkeratotic

Fig. 9 (biopsy 3).—Parakeratosis of duct of sebaceous gland growing into dilated follicle.

throughout, and each sweat duct supplied a small parakeratotic process from which keratin cells were derived. Outside the lesion a sweat duct was found surrounded by squamous epithelium at its termination (fig. 10). Some of the cells of this duct contained large granules and others keratohyalin. Only one hair follicle was seen within the lesion (the whole of which was cut in serial section), and this showed a dilated mouth and thickening of its hyaline sheath. Cellular infiltration was not marked and occurred as a layer in the upper parts of the corium with some increase near each sweat duct.

Biopsy 5.—*Small Scaling Lesion of Arm in Case 5.*—Histologic examination of this lesion showed changes almost identical with those seen in biopsy 4. The

hyperkeratotic lesion occupied a depression in the skin. The same kind of parakeratotic reinforcement to the thickened epithelium occurred over each sweat duct. Cellular infiltration showed as a thin streak immediately below the epidermis, swelling out into round collections at the margins of the lesion. Beyond the limits of the lesion two or three sweat ducts were found to show the cellular changes previously described, and a continuation of the round cell infiltration extended out to reach these ducts. No hair follicles were found within the lesion, and pigment was not altered in amount or distribution.

Biopsy 6.—*Wartlike Lesion of the Back of the Hand in Case 5.*—This wartlike lesion was keratotic throughout. It was found to lie over two hair follicles

Fig. 10 (biopsy 4).—Sweat duct lined with squamous type of epithelium, lying outside apparent margin of lesion. To the left of the picture is a dilated hair follicle.

which showed parakeratotic spurs leading from their depths to project above the normal level of the skin. The keratin lining of the follicles was thickened. Large sweat glands lay immediately below the follicles, and their ducts showed altered epithelium, as did also the ducts lying outside the margins of the lesion. The subepithelial infiltration of round cells was moderate in amount, and the blood vessels were dilated. There was no increase in pigment.

Biopsy 7.—*Large Verrucose Lesion of the Buttock in Case 5.*—In the series of sections examined, the margin of this lesion lay over a hyperkeratotic hair

follicle. Within the lesion, the epithelium was hyperkeratotic with frequent areas of parakeratosis. All the sweat ducts were cellular and appeared as if formed from a projection downward of the malpighian layer of the epithelium. The sweat glands showed a fibrosis in the walls of the coil ducts with hyaline degeneration and vacuolation of the cells lining them. Lymphocytic infiltration was marked, forming a solid layer of cells in the upper part of the cutis. There was an increase in the number and caliber of the blood vessels, and large wandering cells heavily laden with pigment were found near these vessels.

COMMENT

Every observer who has seen and studied porokeratosis has admitted that it is a definite and peculiar disease entity.

In his earliest researches, Mibelli was led to believe that he was dealing with an evolutionary error of the epidermis, but at that time he would not classify the lesion as a nevus. He suggested that it would be necessary to exclude carefully such etiologic factors as a parasitic infection and an alteration in the sweat. Somewhat later,[12] he inclined more toward the sweat alteration theory, and felt that it was with the lichens that the condition should be classified.

Respighi also considered that the change was primarily epidermal, and he sought carefully for nerve changes and parasites as etiologic factors. All his attempts at culture and transplantation failed, and he showed that a porokeratotic lesion transferred in a dermal graft to the skin of a healthy person immediately lost its essential characteristics.

Wende [13] claimed to have made a positive inoculation in his patient by rubbing the powdered horny wall of the original lesion into a scarified area of healthy skin. However, this means nothing more than the production of a new lesion in an affected person at a site of irritation.

The familial tendency of the disease, which had been recognized before, was emphasized when Gilchrist [14] published his cases in 1897-1899. In the family described, eleven cases of the disease were found in four generations.

Ducrey and Respighi [15] drew attention to the occurrence of the disease in four members of two different families who had had the same woman for wet-nurse. This is probably explained by the union of two

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12. Mibelli, V.: Sulla porokeratosi (a propositio di una critical), Gior. ital. d. mal. ven. **29**:349, 1894; tr. in Monatschr. f. prakt. Dermat. **20**:309, 1895.

13. Wende (Footnote 4, second reference).

14. Gilchrist (footnote 5, third reference).

15. Ducrey, A., and Respighi, E.: (a) Les localisations sur la surface muqueuse buccale de l'affection improprement appelée porokératose (Note préliminaire). (b) Sur une singuliére dermatose à localisations cutanées et muqueuse. L'hyperkératose figurée centrifuge atrophiante (improprement appelée porokératose). Nouvelle étude clinique et histologique, Ann. Dermat. et Syph. **9**:1, 609, 734, 1898; Gior. internaz. d. sc. med. **20**:20, 1898; abstr., J. Cutan. Dis. **16**:545, 1898.

families (Nel— and Mar—) with a familial tendency to the disease; its occurrence in only those two children of the Bia— family (mother: Mar—) who happened to have been nursed by the affected Libretta Nel— (who herself had two affected children) may be considered as a coincidence, and not evidence of infection or intoxication.

Truffi,[16] in publishing his interesting systematized case, reverted to the question of including porokeratosis among the nevi. He asserted that Mibelli had pronounced flatly against such a suggestion; to which Mibelli made answer that, in accepting the wider definition of the term nevus to include "any evolutionary disorder of the skin, which may become manifest at an advanced age, and which is subject to indefinite and progressive evolution and complete or partial devolution," he saw no difficulty in including porokeratosis among the nevoid dermatoses, in which category it might be described as a "kerato-atrophic nevus."

Later writers have failed to add further ideas on the point of etiology, and are content to say that the disease is familial and hereditary. I feel therefore that one is justified in adopting Truffi's conclusions and should describe porokeratosis as a nevoid dermatosis of a definitely hereditary and familial type, which may make its first recognizable appearance at any time, either before or after birth.

The skin lesions in porokeratosis are always striking and peculiar, though they vary in appearance in different cases. Respighi attempted to classify all varieties of lesion under five headings, but such an artificial division broke down as soon as new cases were seen, and is furthermore unnecessary. Later observers have tried to distinguish between a primary efflorescence and developed lesions.

The majority of new lesions appear first as miliary, wartlike papules, sharply demarcated from the healthy skin and without any clinical signs of inflammation. These "primary efflorescences" may remain as such for any length of time or may rapidly extend peripherally. As they extend, the center usually becomes depressed, and so a horny ring is formed, which surrounds an area of skin of any size or shape and showing varying changes from the normal. Some lesions may start as rings of various sizes without showing a papular form.

When the ring is formed, it may grow to a variety of sizes and shapes. Basch[17] expressed the opinion that an individual lesion never reaches a larger diameter than 2 cm., and that larger areas are formed by the confluence of two or more lesions. My observations lead me to believe that there is a definite shape and size, peculiar to the individual

16. Truffi, M.: Sur un cas de porokératose systematisée, Ann. Dermat. et Syph. **6**:521, 1905.

17. Basch, E.: A Case of Porokeratosis (Mibelli), Pest. med.-chirur., Presse **34**:626, 1898; abstr. J. Cutan. Dis. **16**:547, 1898.

patient, to which pattern the majority of lesions conform. When the standard size is reached, the lesion does not develop further but may go through any of the changes to be described later. Types as regards shape, size and distribution definitely occur. I will not attempt to classify types, but some examples may be given. Case 2 of this series presented regular circular lesions, with no tendency to confluence, and developing up to about 2 cm. in diameter. Cases of this type are those of Wright,[18] Mibelli's early cases,[1] and the majority of Respighi's cases.[15] Cases 3, 4 and 6 showed smaller round lesions, still with no tendency to confluence and with a marked predilection for the face. All Gilchrist's cases [14] were of this type, though in the older patients, lesions were also numerous on the hands. An entirely different type was shown in case 1, in which the lesions were oval and arranged in linear formations, with a strong tendency to coalesce to form irregular masses. Matsumoto's cases 2 and 3 [19] were of this type. Truffi's case [16] and Matsumoto's case 1 were slightly different, but of a more definitely systematized type; in these cases, the coalescence of lesions mapped out more or less elongated figures with approximately parallel sides. Case 5 corresponds in type to Matsumoto's case 13, in which itching and chronic inflammatory changes in the central area were the outstanding features. Patients with single lesions of large size have been described by Wende,[13] Hutchins,[20] Cregor and Gastineau [21] and Matsumoto (case 11). The simultaneous occurrence of lesions on the glans penis and mucous membrane of the mouth, particularly the tongue, has been reported with sufficient frequency to constitute another group (Mibelli, Yamamoto,[22] Fukai,[23] Yanagihara and Sakamoto [24]).

Fulde [25] stated that though the disease is hereditary, the type of lesion is not inherited. Evidence, however, seems to be accumulating to show that types tend to breed true in families. In Truffi's systematized case, the mother is said to have had lenticular lesions on the face of an entirely different character. All Gilchrist's patients, however, had lesions of the same type, with a strong predilection for the face. Ducrey's familial cases bred true to type. A father and son recently seen by Yamamoto [22] had similar lesions on the glans penis and tongue. The two brothers described in this report had essentially similar lesions.

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18. Wright (footnote 8, first reference).

19. Matsumoto (footnote 11, first reference).

20. Hutchins (footnote 5, first reference).

21. Cregor and Gastineau (footnote 8, second reference).

22. Yamamoto (footnote 11, fourth reference).

23. Fukai (footnote 11, fifth reference).

24. Sakamoto (footnote 11, third reference).

25. Fulde, E.: Studien euber Verebung von Hautkrankheiten, (iv) Porokeratosis Mibelli, Arch. f. Dermat. u. Syph. **114**:6, 1923.

Truffi,[16] in examining the arrangement of the lesions in his case, suggested that the linear lesions followed lines of lowered resistance, or rather of an increased tendency to evolutionary mishaps. However, he was not able to decide whether these were (*a*) the lines described by Voigt as making the boundaries between the distribution areas of adjacent cutaneous nerves (accepted by Philippson,[26] in the case of linear nevi), (*b*) those of Bolk [27] between cutaneous segments or "dermatomes" or (*c*) those of Jadassohn [28] or Gassmann,[29] marking off areas of different hair-slopes. Such details, I feel, need not concern one at present, if one only recognizes that systematization occurs which produces lesions similar in arrangement to linear nevi and which does not have any direct relation to nerve or segmental distribution.

The wall of the lesions may vary within wide limits, and may be altered by trauma or pressure. In some instances, it is unappreciable clinically, the margins of the lesion being flat, or even marked by a groove or sulcus. In its most usual form, it appears as a sinuous raised rampart of from 1 to 3 mm. in height and of an equal width. When of sufficient size, a definite groove or dyke can be seen on its summit, dividing it into an inner and an outer portion. This groove may be interrupted in places, or may be blocked by small, seedlike, horny plugs which can be easily removed. When the wall is narrow, the dyke may not be demonstrable clinically, but is usually apparent under the microscope. The dyke probably represents a depression between an inner and an outer ring of hyperkeratotic hair follicles or sweat glands.

The wall may vary from white, through a normal skin color to various shades of gray, brown or even deep black. The amount of melanin pigment in its base, the degree of hyperkeratosis, the dryness or moisture of the horny cells and the admixture of extraneous dirt are all factors which will influence its color. The outer slope of the wall is usually gradual, while its inner slope is abrupt and steep, or may even be overhanging. The bottom of the internal slope is often marked by a dry, white, epithelial flake firmly adherent to the wall itself. Throughout its whole extent, the wall is firmly and deeply embedded in the skin, and it cannot be entirely removed without leaving a deep and bleeding excavation. In some instances, however, the horny portion dries up, and can be broken off with the fingernails, leaving a

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26. Philippson, L.: Zwei Falle von Ichthyosis cornea (hystrix) partialis, Monatschr. f. prakt. Dermat. **11**:337, 1890.

27. Bolk, Louis: Die Segmentdifferentzierung des menschlichen Rumpfe, Morphol. Jahrb. **25**:466, 1896-1897; **26**:91, 1898.

28. Jadassohn, J.: Zur Kenntniss der systematisirten Naevi, Arch. f. Dermat. u. Syph. **33**:355, 1895.

29. Gassmann, A.: Histologische und klinische Untersuchungen über Ichthyosis, Ergnzngsbd. Arch. f. Dermat. u. Syph., Vienna, W. Brunmueller, 1904.

slightly raised and scaling surface on which a new horny rampart again quickly forms. That certain lesions may lose their walls and undergo spontaneous healing, leaving behind only atrophic scars, has been stated by several observers (Mibelli, Gilchrist, Ducrey and Respighi, Matsumoto). This is not common, however, and most rings once formed remain permanently or go through a regular cycle of desquamation and regeneration.

The enclosed or central area of the lesion may also vary considerably. In some cases, the whole lesion remains raised and may be verrucose or keratotic. More usually, however, the central area becomes depressed and shows some degree of atrophic change. Pigment may be entirely absent, normal or considerably increased in amount. Hairs and hair follicles are usually, but not invariably, destroyed, and sweating is generally absent. In some instances, dilated follicles and pores are present, and these may occasionally be found to be blocked with small keratotic plugs. In areas exposed to trauma or intermittent pressure, the whole lesion frequently shows a considerable callous-like hypertrophy of the epithelium.

Clinically, the lesions are not inflammatory. There may rarely be a slight erythematous halo around the wall, or the central area may be pink. Subjective symptoms are usually completely absent; but severe pruritis is present in some cases, and lesions constantly exposed to pressure may become painful.

Extension is always slow and may be irregular. The primary efflorescence may remain as such for a considerable time, and then suddenly start to extend and form a typical ringed lesion. New lesions tend to appear in crops and at irregular intervals.

Lesions occurring on the mucous membranes show all the characteristics of the skin lesions, save only as they are modified by their peculiar situation. They usually appear as white or opalescent rings of various sizes, surrounded by a raised white wall, which may or may not show the central groove. In some cases, as with the skin lesions, the wall may be absent or be represented by a furrow. The central area may be atrophic, pigmented or verrucose. Lesions of the mucous membrane are so typical and unique that it is claimed that even in the absence of skin lesions a correct diagnosis should be possible.

Histologic Observations.—There is no single feature in the histologic picture of porokeratosis that is unique, as the clinical lesion is unique. The wall or margin of the lesion will usually show the parakeratotic and hyperkeratotic spur, which is related to a sweat duct, hair follicle or sebaceous gland. If the lesion is actively extending, cellular changes will be found in the ducts of the glands immediately outside the wall of the lesion, and these may be taken to represent the earliest changes.

It would appear that instead of remaining noncellular in its transepithelial course, the affected duct becomes lined with a stratified squamous epithelium, which produces a deeply staining keratin. This cellular process may grow out beyond the normal level of the duct opening, as a spur of horn-producing cells, to form the raised walls so typical of the margin of the lesion. The change is usually not permanent, but by some method of extension, affects the ducts immediately adjacent to those at first involved; thus the process becomes centrifugal or eccentric and leaves in its wake marked changes in both the epithelium and the true skin. Generally no signs of inflammation are appreciable clinically, but collections of round cells of the lymphocytic and endothelial type are constantly found in the dermis immediately below the margins of the lesion and where hyperkeratosis is marked in the central area. Some observers consider this dermal infiltration as the primary lesion, and so classify porokeratosis with the inflammations. Others consider that it follows the thickening of the horny layer, as is seen in ichthyosis and in other noninflammatory keratotic lesions. My observations would support the latter view. In the lesion without a raised wall (biopsy *2*), round cell infiltration was minimal, while in other lesions, wherever hyperkeratosis was marked, large accumulations of cells were found in the dermis immediately subadjacent.

The histologic changes in the central area of porokeratotic lesions vary in accordance with the type of change found clinically. The superficial hairs with their follicles and sebaceous systems are usually rapidly destroyed, but the deeper follicles and the sweat glands resist longer. It is surprising to note how delayed are the changes in the sweat glands. Interference of any sort with the duct of a gland, more particularly in the way of occlusion or partial occlusion, is usually rapidly followed by changes in the gland itself. Sweat glands of normal or approximately normal appearance are found both in the peripheral and in the central area of porokeratotic lesions, in spite of the fact that the terminal portion of their ducts may show marked changes. That the sweat glands are ultimately destroyed is shown by the absence of sweating in old lesions. Pigment varies in amount from complete absence to a considerable increase above normal in the basal layer of the epidermis, together with the presence of large melanin granules in wandering cells in the upper layers of the dermis.

The nature of the agent which is responsible for provoking, controlling and directing this peculiar type of reaction can be only speculated on. The cells forming the ducts of the sweat and sebaceous glands are derived from the same germinative layer that produces the squamous epithelial covering of the skin, so they have inherent in them the power of producing keratohyalin and keratin. If one assumes that an inherited susceptibility of the cells causes them to assume a protective rôle under

some stimulus, one must still look for that stimulus, which, at first acting locally on the cells of two or three ducts, ultimately spreads centrifugally till many ducts react. The protective type of reaction is apparently temporary only, but is accompanied or followed by changes in both the epithelium and the dermis. Examination of the sweat for changes of an irritating nature in its chemical composition was an obvious line of investigation when it was thought that the sweat glands only were involved. All such investigations produced negative results, and the occurrence of similar changes in the sebaceous and mucous glands further helps to exclude such a possible etiology. Skin parasites and other infecting agents have been looked for in vain, and one is finally compelled to admit that the etiology and pathogenesis of porokeratosis are at present beyond power of solution.

Nosology.—It is now generally agreed that Mibelli's name, "porokeratosis," is neither accurate nor suitable for the condition, and that it has only its claim of priority to support it. The term "hyperkératose figurée centrifuge atrophiante" used by Respighi, though describing well the usual clinical manifestations, is too clumsy for general use, and fails to take into account the microscopic and etiologic factors. It is obvious that no concise name can be found that will describe both the peculiar clinical nature of the disease and the unusual microscopic changes. I feel, however, that the time has come when one should definitely classify porokeratosis as a nevus, and though Mibelli's suggested name, "kerato-atrophic nevus," is neither complete nor particularly descriptive, it has many advantages over the term "porokeratosis" and might well be adopted.

SUMMARY

The occurrence of porokeratosis (Mibelli) in six Chinese patients is recorded. The etiology, clinical manifestations and histologic observations are discussed. Attention is drawn to the widely differing clinical types of the disease, which are found to breed true in most affected families. Changes in the epithelial lining of the ducts of the sweat and sebaceous glands are described, whereby the epithelium is changed from columnar to the stratified squamous type. This is considered to be the earliest change occurring in the evolution of the lesions. The name kerato-atrophic nevus is considered to be more appropriate than porokeratosis since the condition should be included among the nevoid dermatoses.

AN UNUSUAL RINGED ERUPTION (GRANULOMA ANNULARE?)

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The following case has excited so much interest at various dermatologic meetings that it was thought worth while to record it more fully. Aside from Wende's [1] case, suggested to me by J. E. Lane, nothing has been found closely paralleling the peculiar formation noted herewith, and even Wende's description is not a near approach to this patient's appearance.

REPORT OF CASE

R. J. F., aged 48, white native of Delaware, an indoor railroad employee, was referred to me by Dr. Ira Burns of Wilmington on account of a chronic eruption, limited to the head and neck. Dr. Burns had, not unreasonably, considered the condition to be one of multiple basal cell epithelioma and had used fairly intensive roentgen-ray treatment without much result.

The patient felt that his general health had always been fairly good. He had had malaria as a child of 11, the only serious illness he could recall. In March, 1923, he had had an influenzal attack with ensuing sinus trouble for several days. He had never had any digestive trouble, except constipation, during the previous two years. His appetite had been fair, and his weight had remained stationary. He had had a chronic throat affection for a number of years, and this had caused him to cough occasionally; he referred to it as catarrh. He was married, but had no children. There had been no prolonged exposure to tuberculosis as far as he knew. He said that he had not had venereal infection of any kind. There was no discomfort of the mouth that could be attributed to his teeth.

The patient's previous skin history was negative, except that warts had been present on the hands for some years.

The present disease began about fifteen years before he came under my observation (Feb. 16, 1924) as a small spot on the left side of the neck; it was red, did not feel lumpy and was without scales. It spread slowly, cleared up in the center at once and reached a diameter of 10.16 cm. while retaining a decidedly circular shape. In 1920, a similar area appeared on the right temple, three years later on the right side of the forehead and four months before his first visit, on the left cheek. Several smaller foci have since appeared, all of which had similar characteristics. Where the lesions invaded the hairy scalp, there had been no loss of hair before roentgen-ray treatment. Subjective symptoms were lacking. All lesions were progressing peripherally, slowly but steadily.

The patient was a tall, spare person, weighing 142 pounds (64.4 Kg.). The color of his normal skin was not suggestive of anemia, though the eruption, being a lemon color, gave an impression of pallor. The superficial lymph nodes were not palpable. There was no arteriosclerosis. His skin was neither especially dry nor oily, and acne of either type had never been present. Seborrhea capitis was not noticeable, and the hair was of good thickness for his age.

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1. Wende: J. Cutan. Dis. **27**:388, 1909.

All reflexes were normal. The pharynx was dry and glazed. The tonsils showed distended, apparently infected, crypts. The molar teeth exhibited a considerable amount of gold bridge work which had been in place for many years. Pyorrhea was present but not to a marked degree. The chest was always found to be normal, several examinations having been made at different times. Enlargement, abnormality or tenderness of the abdominal organs was not noted. The blood pressure ranged about 120 systolic and 78 diastolic.

Laboratory examinations of the urine invariably gave negative results. Marked changes were not noted in the blood, except polycythemia. On March 23, 1928, the amount of hemoglobin was 83 per cent; the red cells numbered 5,830,000,

Fig. 1.—Appearance of the patient's face in 1924.

and the white cells, 6,200. The differential count revealed: 66 per cent polymorphonuclears, 28 per cent small lymphocytes, 2 per cent large lymphocytes, 1 per cent each of transitionals and basophils and 2 eosinophils.

The Wassermann reaction was negative on Feb. 16, 1924, and on Jan. 8, 1928. Scales and cultures were uniformly negative for fungi.

The appearance of the eruption was striking and puzzling. Multiple, fairly rounded areas of similar type, confined to the head and neck, stood out distinctly against the contrasting normal skin. There was an extremely distinct, thin and slightly elevated limiting wall to each area. In places, this consisted of a succession of fine opalescent, faintly brown, nodules which suggested the

pearly border of an epithelioma on a reduced scale. Other sections of the wall were lightly crusted with a brownish tinge. In places, this border had a bold round curve; in others, it was somewhat serpiginous. The roentgen-ray treatments had flattened it down in the areas treated but had not been able to obliterate it. The area included inside this border was different, both in color and in texture of skin, from that outside. Scales were not present in any of the areas. The field over which this wall had advanced was left atrophic, thin and shiny. It was mainly an ivory color, occasionally almost white; it was depressed slightly, and the included follicles were somewhat shrunken. There was no loss of hair, however. The area was smooth to the touch and not infiltrated; distinct ridge was noted when the margin was palpated.

Fig. 2.—Atrophic changes and typical margin.

This brief description of the case when first seen needs no alteration at the present time. During the four years the patient has been under observation there has not been any change, with the exception of that due to peripheral progression of the lesions before noted and the appearance of new areas on the forehead, tip of the nose, back of the head and neck. These beginning lesions were slightly pinker, but otherwise the characteristics were identical. In March, 1928, about fourteen areas were noted. In spite of the fair size of some of the oldest lesions, no two have as yet touched tangentially.

A biopsy performed in April, 1924, by Dr. Drant, did not show bacteria in the numerous sections examined. Tissue was again removed

in October, 1927, and a description of the sections made from it by Dr. Weidman appears in this paper.

This patient was examined at the meeting of the Atlantic Dermatologic Society in Philadelphia in October, 1924.[2] In the discussion of the case, Dr. Gilchrist said that the condition looked like a basal cell epithelioma, though the section was not a good one. Dr. Wise felt that the section excluded epithelioma and porokeratosis but not granuloma annulare, although the latter seldom showed a smooth, flat atrophy within the lesion such as this one did. Another speaker called attention to the fact that granuloma annulare usually responded to roentgeno-

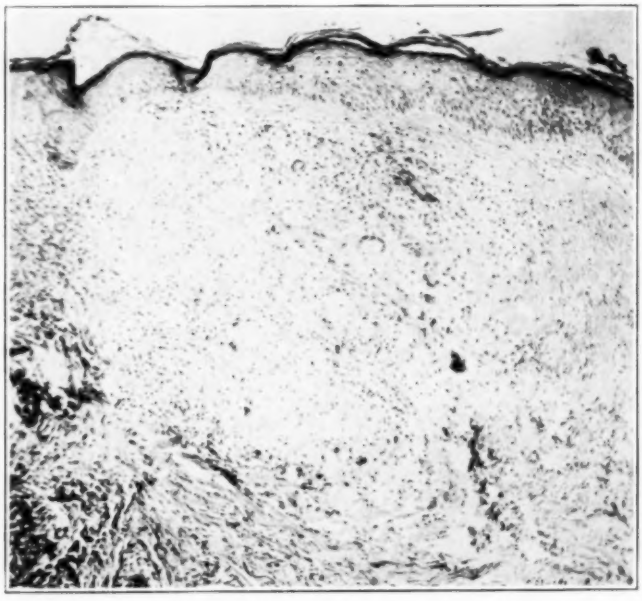

Fig. 3.—A section of the wall.

therapy, while this condition had been resistant to it, and that the absence of lesions on the backs of the hands was also against the diagnosis of that disease.

The patient was shown again at the American Dermatological Association[3] meeting in Philadelphia, May 27, 1926, where a number of speakers joined in the discussion. The diagnoses suggested by them were granuloma annulare, lupus or epithelioma.

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2. Corson: A Case for Diagnosis, abstr., Arch. Dermat. & Syph. **11**:565 (April) 1925.

3. Corson: A Case for Diagnosis, abstr., Arch. Dermat. & Syph. **14**:606 (Nov.) 1926.

This discussion is recalled to show the diversity of views held by the observers at that time.

The patient was shown at the Atlantic Dermatological Conference on Dec. 2, 1927, in conjunction with new sections. Dr. Wise at that time felt that the diagnosis of granuloma annulare was a likely one, basing this view mainly on a recent lesion at the back of the head.

The sections, made and described by Dr. Weidman, presented the following features.

Microscopic Description.—There was a normal quantity of keratinous material on the surface. Nothing important could be made out in the epiderm, except that perhaps the prickle cells were slightly edematous and that there was a little hyperplasia of the rete cells. Interpapillary pegs were conspicuously absent. From place to place there were increased quantities of pigment, more particularly over those portions of the corium which contained the larger quantities of elastic tissue.

The Corium.—There were no extensions into the corium to substantiate any clinical impression as to epithelioma. On one side of the section, the subpapillary region was largely occupied by a thick stratum of elastic tissue. The latter was in the form of heavy serpentine hyaloid ropes; most of it stained faintly blue, but some portions were red. There was not much fragmentation. Toward the other end of the section, one encountered a number of smaller and larger granulomas comprised for the most part of the endothelioid cells. Around some of them there were numbers of lymphocytes, and in almost every section there was one or more giant cells. Some were of the classic Langerhans type only smaller. There were no definite necroses. A fine reticulum was seen consistently ramifying between the endothelioid cells. In one section, the granuloma was definitely grouped around a sebaceous gland, but under the circumstances, i. e., where there was such extensive granulomatous development throughout the skin, it can be readily imagined that the sebaceous gland would not escape becoming involved. In still other sections, the infiltration appeared particularly around the sweat ducts.

SUMMARY

An annular eruption of long standing is variously regarded as granuloma annulare and superficial epithelioma. The sections rule out epithelioma. There is a possibility of its being granuloma annulare, although an unusual form of tuberculosis cutis is to be considered.

Medical Arts Building.

THE TECHNIC OF CISTERN PUNCTURE (CISTERNA MAGNA)*

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Puncture of the cisterna magna is by no means a new procedure. In America, Ayer [1] claimed that before 1920 there was no mention of cistern puncture in any of the literature. This was controverted by Westenhofer,[2] who said that he performed it in 1905 and by Obregia,[3] who claimed he used this method twenty-two times during 1908.

Up to October, 1923, Ayer and his co-workers had performed 1,985 cistern punctures without one fatality, and numerous other Americans, notably Ebaugh,[4] Keegan and Riddell,[5] Berger and Grossberg [6] and McCusker [7] reported similar results.

I present this method of cistern puncture as it applies to the syphilologist and the dermatologist as a diagnostic test in preference to lumbar puncture because of its clinical advantages, simplicity and lack of unpleasant sequelae.

On Oct. 6, 1927, Dr. Howard Fox invited Dr. Memmesheimer of Professor Hoffman's Dermatological Clinic at Bonn, Germany, to the University and Bellevue Medical Clinic. Dr. Memmesheimer performed two punctures before the staff of the clinic, and all were amazed at his skill in puncturing the cistern and obtaining the spinal fluid, and then allowing the patient to get up and go about his work.

Since July, 1925, there has been practically nothing in the American literature with reference to suboccipital puncture as it applies to the syphilologist. In Germany, however, this procedure has been used extensively during the past three years so that cistern puncture has

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* Read (with demonstration) before the Section on Dermatology and Syphilology, New York Academy of Medicine, Dec. 6, 1927.

1. Ayer, J. B.: Puncture of the Cisterna Magna, Arch. Neurol. & Psychiat. **4**:529 (Nov.) 1920.

2. Westenhofer: Zur Geschichte der Okzipitalinzision und Punktion, München. med. Wchnschr. **71**:687, 1924.

3. Obregia: La rachicenteses sous-occipitale, Compt. rend. Soc. de biol. **65**: 277, 1908.

4. Ebaugh, F. G.: Puncture of Cisterna Magna: Summary of Five Years' Experience, J. A. M. A. **85**:184 (July 18) 1925.

5. Keegan, J. J., and Riddell, T. E.: Lumbar Spinal Puncture and Cisternal Puncture, Nebraska M. J. **8**:129, 1923.

6. Berger, S., and Grossberg, M. H.: The Indications for Cisterna Puncture, Ohio State M. J. **22**:1039, 1926.

7. McCusker, H.: Some Observations on Cistern Puncture, J. Nerv. & Ment. Dis. **53**:453, 1921.

replaced lumbar puncture as a diagnostic test in the vast majority of all neurologic and dermatologic clinics.

Numerous studies on the serologic changes at various levels of the cord have been published by Baumann,[8] Eskuchen,[9] Krechel,[10] the latest of which to appear was that of Memmesheimer [11] in September, 1927.

Since 1923, twenty-seven German and only two American papers have appeared on this subject. The two American articles deal solely with the intraspinal treatment by the way of the cisternal route. It seems that America has lagged in this important test during these three years.

Stokes, in his book on clinical syphilology, said:

> A large number of these punctures have now been done without unfavorable results and the incidence of reaction seems to be practically nil. On the other hand, I have hesitated to adopt it as a diagnostic procedure for every day use, although one of my staff has been regularly trained to do the puncture by previous work on the cadaver.

In a complete survey of all available literature on the subject, over 10,000 cases of cistern puncture have been reported with only two fatalities; in one case reported by Nonne [12] in a man aged 79, there was an anomaly of the vertebral artery; in the other case reported by Reuter [13] in a boy aged 14, a tumor of the brain was disclosed at autopsy. In all, only five injuries of a serious nature have been reported (Ayer,[14] Pfister,[15] Stahl,[16] Eskuchen,[9] Kroiss and Dielmann.[17])

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8. Baumann, W.: Vergleichende Untersuchungen des bei Zisternenpunktion und Lumbalpunktion entnommenen Liquors, München. med. Wchnschr. **74**:148, 1927.

9. Eskuchen, K.: Die Punktion der Cisterna cerebellomedullaris (Technik experimentelle und klinische Verwendung), Klin. Wchnschr. **2**:1830, 1923.

10. Krechel, J., and Zurhelle, E.: Liquorkontrolle maximader Frühbehandlung mit Vergleichsuntersuchungen bei unbehandelter oder ungenügend behandelter Syphilis; Liquorbeeinflussung durch Malaria behandlung, Dermat. Ztschr. **49**:305, 1926.

11. Memmesheimer, A. M.: Zur Bewertung der Reaktionen im suboccipital gewonnen Liquor cerebrospinalis, München. med. Wchnschr. **74**:1490, 1927.

12. Nonne, M.: Meine Erfahrungen über den Subokzipilstich auf den Basis von 310 Fallen, Med. Klin. **20**:919, 1924.

13. Reuter, F.: Ein Fall von plötzlicher Tode bei Zysternenpunktion, Wien. klin. Wchnschr. **39**:1275, 1926.

14. Ayer, J. B.: Puncture of the Cisterna Magna, J. A. M. A. **81**:358 (Aug. 4) 1923.

15. Pfister, M.: Zur Punktion der Cisterna magna, München. med Wchnschr. **71**:603, 1924.

16. Stahl, R.: Zur Technik der Suboccipital punktion, Klin. Wchnschr. **3**:1714, 1924.

17. Kroiss, O., and Dielmann, H.: Ueber die Liquorgewinnung aus der Cisterna cerebello-medullaris durch Punktion, München. med. Wchnschr. **73**:1227, 1926.

Cistern puncture, therefore, compares most favorably with lumbar puncture as regards safety, and it is unquestionably the method of choice in consideration of the after-effects. If properly performed—and it should be performed only after study on the cadaver—it is almost painless, much less painful than lumbar puncture.

Potentially, the hazard of injuring the vital centers is apparent but when cistern puncture is performed with the proper technic and by some one who is experienced, the danger is no greater than in lumbar puncture. All investigators agree concerning this; some even go so far as to say that injury to the floor of the fourth ventricle is hardly possible—Kroiss and Dielmann,[17] Hartwich [18] and Nonne.[12]

Stiffness in the back of the neck is sometimes complained of; headaches occur occasionally, but always disappear after twelve hours. Patients should be allowed either to sit up in bed or to be about, as thereby the negative pressure in the meninges is maintained, which prevents any seepage of the spinal fluid into the tissues.

Patients on whom a lumbar puncture and then a cistern puncture have been performed always prefer the latter.

Another great advantage is that blood seldom contaminates the fluid.

There are two methods of cistern puncture recognized today; the technic of Ayer and that of Eskuchen. In 1920, Ayer described his method. Ebaugh [4] said:

> Ayer's method and technic for puncture of the cisterna magna has not been improved and owing to his unusually careful research and description of the landmarks, there is little likelihood of there ever being any substantial change in his original description.

Berger and Grossberg [6] spoke in a similar vein. Eskuchen, who did not know of Ayer's work at the time, first published his method in 1923.

All American and English investigators use the Ayer method and do not mention the Eskuchen technic.

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18. Hartwich, A.: Die Theoretische Bedentung der Subokzipitalpunktion, Deutsche Ztschr. f. Nervenh. **85**:21, 1925.

THE RELATION OF CARBOHYDRATE METABOLISM TO ECZEMA

AN EXPERIMENTAL STUDY *

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For many years it has been believed that eczema may be associated with a disturbed carbohydrate metabolism. For example, it has been noted that in some patients who have both eczema and diminished tolerance for sugar, the former condition improved or disappeared entirely following the institution of low carbohydrate diets. More recently, numerous investigations as to the alleged association of the two conditions, particularly by biochemical methods, appear to have resulted in a demonstration of a causal relationship.

An attempt has been made to investigate further the alleged causal relationship between eczema and lowered sugar tolerance. The method of approach was as follows: (*a*) a comparative study of the carbohydrate metabolism of eczematous and of noneczematous persons; (*b*) determination of the effects of intradermal injections of dextrose and (*c*) the effects of direct contact of solutions of dextrose with the skin; (*d*) a study of skin sensitivity to chemical irritants of persons with and without disturbed carbohydrate metabolism, and (*e*) determination of the effect of hyperglycemia on the bacterial activity in human sweat.

CARBOHYDRATE METABOLISM

Since 1921, the subject of eczema and disturbed carbohydrate metabolism has been under investigation in the department of Dermatology of the Montreal General Hospital; Campbell and Burgess [1] recently reported the observations. They reported that of thirty-one patients with eczema and a disturbed carbohydrate metabolism, some improved much more rapidly on low carbohydrate diets than on normal diets, and others only when the carbohydrate contents of their diets were low.

Since their report, sugar time curves have been obtained on 106 additional patients selected at random. Patients with exogenous eczema and children were not included. In 45.3 per cent of the cases, the values were normal; 14.1 per cent had a diminished tolerance; 11.3 per cent, delayed assimilation, and 29.2 per cent showed both diminished tolerance

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* From the Department of Dermatology, the Montreal General Hospital, Montreal.

1. Campbell, G. G., and Burgess, J. F.: Intolerance to Sugar as a Factor in the Production of Some Dermatoses, Brit. J. Dermat. **39**:187 (May) 1927.

and delayed assimilation. Thus, 54.7 per cent of patients with eczema had some disturbance of the carbohydrate metabolism.

These observations would lead to the belief that the association of disturbed carbohydrate metabolism and eczema is established. The information that was lacking, however, was whether the incidence of disturbed carbohydrate metabolism in noneczematous subjects was not as great. Information on this point was sought for.

Rabinowitch [2] has reported blood sugar time curves obtained in 713 nondiabetic patients selected at random from the outdoor and indoor departments of the Montreal General Hospital. The technic for the blood sugar estimations was identical with that used in this investigation. The results in the two series are, therefore, comparable. He found that the carbohydrate metabolism was disturbed in 38 per cent of the series. Eighteen per cent showed a diminished tolerance and 20 per cent delayed assimilation. From these figures it will be seen that the incidence of diminished tolerance in this series was the same as in the cases of eczema that I have reported. The incidence of delayed assimilation with or without a diminished tolerance was 40.5 per cent in the eczematous group, as compared with 20 per cent in the noneczematous group.

CUTANEOUS SENSITIVITY TO DEXTROSE

The reaction of the skin to various biologic materials appears to have received little attention. Schurch,[3] using the contact method of Jaeger,[4] investigated skin sensitivity to many such materials including dextrose, glycocol and beta-oxybutyric acid. He tested 171 normal subjects and thirty-one with eczema. The results were negative in all cases.

In the present experiment the skin was tested for its sensitivity to dextrose by intradermal injections and by direct contact with the skin of solutions of dextrose.

TECHNIC

Technic of Injection.—Using thoroughly cleansed tuberculin syringes, which were sterilized by boiling and dried, 0.1 cc. of 0.1, 1 and 5 per cent charcoal filtered solutions of chemically pure dextrose were injected into the unaffected skin of the forearm. The injections produced an immediate white wheal, with, at times, a slight erythematous halo. The effect of the injection was observed and read one hour later and again twenty-four hours later.

Technic of Direct Contact.—In the present experiment and in those to be detailed later, the technic was that described by Jaeger.[4] Squares of gauze, from three to four layers thick and 1.5 cm. square, were moistened with

2. Rabinowitch, I. M.: Blood Sugar Time Curves, J. Clin. Investigation **2**:579 (Aug.) 1926.

3. Schurch, O.: Reizversuche mit physiologischen Substanzen auf der haut von Normalen und Ekzematikern, Klin. Wchnschr. **4**:11 (Jan.) 1925.

4. Jaeger, H.: De la nature de l'eczema, Ann. de dermat. et syph. **4**:10, 109, 1923.

a 1 per cent solution of dextrose and placed on the flexor surface of the arm on the unaffected skin. Over it was placed oil skin, so as to overlap, and the edges were bound down with narrow strips of adhesive; this was done in order to hinder evaporation. Over all was placed a bandage which was removed twenty-four hours later, when the results were read.

The results were recorded as negative, 1, 2, 3, 4 and 5 plus. The 1 plus reaction indicated a mild erythema, the 2 plus a more severe erythema, 3 plus beginning vesiculation, 4 plus more severe vesiculation and 5 plus ulceration. According to Jaeger, who examined histologic sections of his reactions, only the 3 to 5 plus reactions were those of eczema. This was the standard adopted in this investigation.

As a rule, results could be read twenty-four hours after the application was made. Occasionally, however, an erythematous reaction became vesicular and a vesicular one more pronounced several days later. In consequence, all reactions were observed for at least a week after the application was made. A reaction would take from ten days to three weeks to disappear, depending on its severity.

Fifty consecutive patients with eczema were tested for skin sensitivity to dextrose, twenty-five intradermally and twenty-five by the contact method. In this group were included all types of eczema. The sugar tolerance of forty-two of these subjects was known; in twenty-five it was normal, and in seventeen it was lowered. Negative results were obtained in all.

CUTANEOUS SENSITIVITY TO CHEMICAL IRRITANTS

Jaeger,[4] Bloch,[5] Schurch[3] and Evening[6] have shown that the eczematogenic skin will react to the application of external irritants much more frequently than will the normal skin. They used, for the most part, oil of turpentine, tincture of arnica and formaldehyde as tests of the reactivity of such skins.

Jaeger reported positive reactions in 50 per cent of seventy-seven patients with eczema and in only 5 per cent of those with normal skin. This author noted that one of the normal subjects who reacted to the application of irritants was a patient with diabetes, with 6 per cent sugar in his urine. Schurch obtained similar results. Evening obtained positive reactions in 36 per cent of 222 patients with eczema and in 2.2 per cent of 317 noneczematous subjects. Bloch, in a much larger series, found that 35 per cent of those with eczema reacted as compared with only 5 per cent of those with a normal skin. These authors concluded that the eczematogenic skin was more sensitive to external irritation than the normal. They believed, furthermore, that the normal

5. Bloch, B.: The Pathogenesis of Eczema, Arch. f. Dermat. u. Syph. **145**:34, 1924.

6. Evening: Contribution to the Study of Eczema, Dermat. Wchnschr. **27**: 1355 (Sept.) 1926.

subjects who gave reactions were preeczematous persons, a potential reservoir from which those with eczema were drawn.

Since, in almost all instances where positive reactions were found, turpentine was the agent, it was felt that this substance alone could be used as a test of skin sensitivity. Chemically pure oil of turpentine (U. S. P.) was used throughout. The tests were performed according to the contact method of Jaeger.

RESULTS

Sixty-six normal subjects were first tested. They neither had nor gave a history of ever having had eczema; they included surgical and medical cases and cases of diseases of the skin (psoriasis, syphilis, acne and other conditions). In six of the cases, an incidence of 9 per cent, the reaction was positive.

Twenty-five noneczematous subjects with diabetes were then tested. The blood sugar contents at the time of testing ranged from 93 to 290 mg., with an average of 178 mg. per hundred cubic centimeters. The ages ranged from 21 to 72 years, with the majority past middle age. Two of the patients, or 8 per cent, reacted to turpentine.

Eighty consecutive cases of eczema were tested. These cases included all varieties of eczema, exogenous as well as endogenous, acute, subacute and chronic. Thirty-six patients, or 45 per cent, gave positive reactions. It was noted that positive results were more frequently obtained in those with exogenous eczema. A definite external irritant was found in thirty-four patients. Of these twenty-two, or 63.5 per cent, reacted. In the endogenous group fourteen, or 30.4 per cent, were positive.

In forty-eight of this group, the blood sugar time curves had previously been determined. It was altered in twenty-seven patients, or 56.3 per cent, and normal in twenty-one, or 43.7 per cent. The average age in the former group was 43 years, in the latter 48 years. The average duration of illness in the former group was three years, in the latter five years. Positive reactions were obtained in twelve, or 44 per cent, of those with a disturbed carbohydrate metabolism and in nine, or 43 per cent, of those in whom the carbohydrate metabolism was normal.

Of the twenty-seven patients in whom the carbohydrate metabolism was disturbed, fifteen were tested before and fifteen one to two months after the institution of diets of low carbohydrate content. The latter group included three subjects who had also been tested before the institution of the low carbohydrate diet. Positive reactions were obtained in eight, or 53 per cent, of the former, and in seven, or 47 per cent, of the latter group.

To verify further these observations, five subjects with eczema were tested both before and after the institution of the low carbohydrate

diets. The intervals between the two tests were three weeks in one instance and four weeks in the others. The reactions in the patients when first tested were 5 plus, 5 plus, 4 plus, 4 plus and 3 plus. With two exceptions, the second test gave identical results. One was a diabetic patient, whose blood when first tested contained 220 mg. of sugar per hundred cubic centimeters, and 137 mg. when again tested. The skin of this patient gave a 5 plus reaction the first time, 3 plus the second. The skin of the second patient, on the other hand, gave a 3 plus reaction when first tested and a 4 plus reaction when tested the second time.

BACTERIAL GROWTH IN HUMAN SWEAT [7]

Apropos of the relationship between the skin and carbohydrate metabolism, the observations of Folin, Trimble and Newman [8] and of Usher and Rabinowitch [9] are interesting. The former authors showed that thirty minutes after the injection of dextrose into guinea-pigs, the skin contained almost as much sugar as the blood. The latter, in a study of the excretion of sugar in sweat, found that, in persons with lowered sugar tolerance, the rates of excretion following ingestion of dextrose were increased. On the other hand, when dextrose was not given, the rates of excretion approached normal values.

In 1897, Hallopeau [10] suggested that the pathogenic organisms normally present on the skin became activated in the presence of this increase in sugar. The work of Weidman [11] and of Meckel [12] appear to substantiate this theory. Weidman found that where fungi could not be demonstrated in patients with dysidrosis of the palms, the application of wet dextrose dressings resulted in their demonstration. Meckel showed that the skin of diabetic persons was more susceptible to the action of yeasts than that of normal persons. As far as could be ascertained, however, there are no references in the literature to studies on human sweat as a culture medium for bacteria. An investigation was made, therefore, with three objects in view, namely: (*a*) to determine whether bacteria would grow in human sweat; (*b*) if they do, to com-

7. Usher, B.: Human Sweat as a Culture Medium for Bacteria, to be published.

8. Folin, O.; Trimble, H. C., and Newman, L. H.: Distribution and Recovery of Glucose Injected into Animals, J. Biol. Chem. **75**:263, 1927.

9. Usher, B., and Rabinowitch, I. M.: Excretion of Sugar in Sweat, Arch. Dermat. & Syph. **16**:706 (Dec.) 1927.

10. Hallopeau, quoted by Raynaud, Lacroix and Hadida d'Alger: Des rapports de la glycemie avec les dermatoses, Bull. Soc. franç de dermat. et syph. **33**:397 (May) 1926.

11. Weidman, F. D.: Laboratory Aspects of Epidermophytosis, Arch. Dermat. & Syph. **15**:415 (April) 1927.

12. Meckel, M.: Weitere Mitteilungen über erosive Blastomykosen, Dermat. Wchnschr. **84**:817 (June 18) 1927.

pare their growth in sweat with that in other media; (*c*) to note whether growth varied with the sugar content of the sweat.

Various bacteria, among them pyogenic cocci, *Tricophyton interdigitale* and a yeast were planted in sweat. These organisms were found to grow actively in that medium. The cocci appeared to grow better in sweat than in sugar mediums, the higher fungi somewhat better in the latter. When samples of sweat from different subjects were inoculated with *Staphylococcus pyogenes-aureus,* it was found that growth varied directly with the sugar content of that secretion. To confirm this observation, *Staphylococcus pyogenes-aureus* was planted in samples of sweat to which varying amounts of dextrose had been added. It was found that bacterial activity varied directly with the sugar content of the sweat.

CONCLUSIONS

The blood sugar time curves in a series of patients with eczema were compared with those in a series of noneczematous subjects. The curves were altered in 54.7 per cent of the former group as compared with 38 per cent of the latter. In both groups, the incidence of diminished tolerance for sugar was the same. In those with eczema, however, the incidence of delayed assimilation was much greater than in the noneczematous persons, namely, 40.5 per cent, as compared with 20 per cent.

From these experiments, dextrose does not appear to be a dermal irritant.

The presence of a disturbed carbohydrate metabolism does not appear to increase the sensitivity of the skin to chemical irritants.

It has been shown that human sweat is an excellent culture medium for bacteria. It has further been shown that bacterial growth in sweat varies directly with its sugar content. It is believed possible that, in at least some persons with a disturbed carbohydrate metabolism, pathogenic organisms normally present on the skin surface become activated and exert effects.

SUPERFICIAL YEAST INFECTIONS OF THE GLABROUS SKIN

FURTHER CLINICAL AND EXPERIMENTAL STUDIES *

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Yeast fungi are gaining more and more prominence as an etiologic factor in certain types of dermatitis involving both localized and more expansive areas of the glabrous skin. In a recent paper,[1] I summarized the results of a series of inoculations into human beings in which cultures of yeast organisms were used on their respective hosts, who had presented widespread superficial cutaneous eruptions. The positive results strongly suggested that the type of blastomyces or yeast of the genus *Cryptococcus* could be pathogenic. The cases that formed the basis of this previous paper were of the types usually considered clinically as seborrheic dermatitis (especially of the exudative type), flexural eczema and infantile eczema; the inoculations performed were confined to patients presenting the first two types of eruptions. Only a few of the pertinent features of that investigation will be repeated in this paper; results of further inoculations and other observations are added as a result of continued clinical and experimental studies in an effort to determine the range of pathogenicity of yeast fungi (especially the cryptococci) in the causation of widespread superficial eruptions not entirely confined to close intertriginous surfaces.

CLASSIFICATION

The efforts to classify fungi satisfactorily have resulted in considerable confusion, different workers often using different bases. The whole situation has been intelligible only to the scientific mycologist who knows all of the angles. This is regrettable, because in the past the classification and cataloging of fungi (superficial invaders) have not had any practical bearing on treatment; a simple classification based on the major morphologic characteristics might be of far greater value to the clinician and lead to better therapeutic results. For instance, a valuable observation along this line was made by Wise,[2] who suggested that cases

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* Studies in Mycotic Dermatitis, III.

1. White, Cleveland: Mycotic Dermatitis: Superficial Yeast Infections of the Glabrous Skin, N. Y. State J. Med. **27**:1116 (Oct. 15) 1927.

2. Wise, Fred, in discussion on Fox, Howard: Case of Onychomycosis, Arch. Dermat. & Syph. **16**:808 (Dec.) 1927.

of onychomycosis of yeast origin respond more readily to roentgenotherapy than do those of *Trichophyton* origin.

Castellani [3] classified yeast fungi on the basis of hyphae found on microscopic examination and ascospores found on culture. One might class *Saccharomyces* and *Cryptococcus* under the general grouping of *Blastomyces* or yeast, since a real mycelium never develops, even in cultures. Both of these present budding in tissue and culture, which is the characteristic morphology of all yeast. The only difference between these two families is the formation of ascospores in the saccharomycetic while none are found in cultures of *Cryptococcus*. The other two members of Castellani's yeast group are really "yeastlike" fungi, for they present, both microscopically and on culture, hyphae in addition to the usual round cell yeast structure. The members of this second group embrace *Endomyces* and *Monilia*, the most common causative organisms of thrush; *Endomyces* develop ascospores on culture while *Monilia* do not. Hence, the second group may in general be termed the "yeastlike" fungi in contrast to the nonhyphae-forming division just designated as yeast or *Blastomyces*. The clinical entity known as blastomycosis is due to a deeply invading fungus; it has always been classed as a yeast, but it is difficult to consider it as a true yeast when a distinguishing feature of its growth on culture mediums is its formation of classic mycelium. It might be noted in passing that it is now known clinically that fungi of genera which are ordinarily deep invaders can also produce superficial epidermal eruptions; Benedek [4] has recently reported this for *Sporotrichum lipsiense*. The term yeast in this presentation is restricted to that type of fungus which buds, but which does not show any real mycelium at any time, either microscopically or culturally.

INCIDENCE OF YEAST FUNGI IN AUTHOR'S CASES

In a detailed clinical and laboratory study of 724 patients who presented scaling and crusting cutaneous lesions of both localized and widespread distribution, suggesting a mycotic or mycotoxic basis, yeast cultures were grown in 152 cases. All were *Cryptococci* except one affecting the hands, which was *Saccharomyces*. Practically all the remaining cases, in which mainly the closely intertriginous areas of the body were affected, such as the feet, the hands and the groin, were found to be cases of hyphomycetic ringworm, as proved microscopically

3. Castellani, Aldo: Fungi and Fungous Diseases, Arch. Dermat. & Syph. **16**:578 (Nov.) 1927.

4. Benedek, T.: Dermat. Wchnschr. **83**:1696, 1926; quoted by Mitchell, J. H.: Need for Research in the Treatment of Epidermophytoses, J. A. M. A. **89**:421 (Aug. 6) 1927.

and in some cases culturally; they are, therefore, not included in this report.

I have kept in mind that the absence of hyphae from lesions of the extremities or elsewhere, which appear clinically to be of mycotic origin, is not significant in one isolated case but in a representative number would suggest that it may be due to (1) some nonhyphomycetic fungus such as a blastomycete; (2) a hyphomycetic fungus with changed morphology, especially on glabrous skin; (3) a toxic or allergic local reaction; (4) an ultramicroscopic virus, or (5) bacteria.

The distribution of these yeast cultures according to region and type of lesion is shown in the table.

It will next be necessary to amplify the terms and data in the table. The term seborrheic dermatitis was used to denote a special regional

Clinical Source of Yeast Cultures

Seborrheic dermatitis	66
Infantile eczema	24
Ringworm of feet and hands	
Feet and toes—KOH * negative for hyphae	28
Feet and toes—KOH positive for hyphae	2
Feet and toes—"mosaic" KOH	11
Hands and fingers KOH negative for hyphae	17
Total	58
Tinea cruris (one exhibited positive hyphae on KOH)	2
Erosioblastomycetica interdigitalis	1
Eczema of the breast	1
Grand total	152

* This refers to the well known extemporaneous preparations made by simply clearing materials in potassium hydroxide solution.

distribution for oozing, crusting and occasionally scaling areas, all on an erythematous base. Ormsby [5] prefers to use the term for the clinically inflammatory lesions as contrasted to Unna,[6] who also included the fine, branny scaling condition common to many scalps. Ormsby adds that often any dermatitis produced by whatever irritant or cause, may, in persons with a tendency to functional disturbances of the sebaceous glands, take on a seborrheic character (a variant of the "mixed eruption" concept of Brocq). The common locations of these eruptions were on the face, the sides of the neck, the retro-auricular and palpebral areas, the

5. Ormsby, O. S.: Diseases of the Skin, ed. 3, Philadelphia, Lea & Febiger, 1927, p. 1093.

6. Unna: Histopathology, Monatshefte, 1887, vol. 7; quoted by Pusey, W. A.: Principles and Practice of Dermatology, ed. 4, New York, D. Appleton and Company, 1924, p. 400.

dorsa of the hands and wrists, and on the antecubital and popliteal spaces. In some patients, many of these sites were involved; occasionally, only one or a few. Of the sixty-six cases with positive yeast cultures, the condition was localized strictly to the scalp and retro-auricular areas in four and strictly to the flexures of the arms and the legs in five.

The infantile eczema group comprised infants who had oozing, crusting eruptions on the face and contiguous areas. Whether I am justified in classifying these cases as seborrheic and whether infantile eczema is a clinical expression of this type of seborrheic dermatitis, cannot be stated with finality. However, it is a well known clinical fact that some cases of so-called infantile eczema persist with an occasional intermission into adolescent and adult life, developing into such dermatologic entities as flexural eczema and seborrheic dermatitis of the regional areas just noted, and being especially of the exudative type. In the two general groups of cases just considered, cultures were negative for yeast in many attempts, approximately 23 per cent.

Ringworm of the hands and feet is usually considered to be due to a hypomycetic fungus. In the fifty-eight cases just listed, eleven patients had a mosaic form of fungus microscopically; two others had hyphae on direct examination. The mosaic forms are considered pathogens by Weidman;[7] what they really are mycologically, it is hard to say. In this series, all such cases yielded *Cryptococcus* on culture; whether the yeast grew definitely from any of the mosaic forms is now under investigation. Two of the positive intertriginous infections of the toes presented typical long ringworm hyphae on microscopic examination, both of which were found to be *Trichophyton interdigitale* on culture; that is, there were two different organisms in the same case. Sabouraud has long maintained that two pathogenic fungi could not be grown from the same case. Opportunity has not been afforded in this set of studies to test such observations by auto-inoculation to determine pathogenicity of the recovered yeast and trichophyta. In one of my two cases with positive yeast cultures of tinea cruris, hyphae were present on direct examination which proved to be *Epidermophyton inguinale* on culture.

In one case of blastomycetic erosio-interdigitalis in a housewife, yeast organisms only were found on direct examination, and *Cryptococcus* developed on culture. Some observers have found that the members of the thrush group can cause cases of this type. The breast eczema was bilateral and had been present for over a year. It was an oozing, crusting eruption with an erythematous base; the condition was confined to the area of the breasts.

Numerous contaminating molds were grown from the various cases—mostly *Aspergillus* and *Penicillium*. Negative auto-inoculations of

7. Weidman, Fred D.: Laboratory Aspects of Epidermophytosis, Arch. Dermat. & Syph. **15**:415 (April) 1927.

Aspergillus fumigatus, Penicillium brevicaule, Trichothecium roseum, Mucor mucedo, and a form of *Alternaria* were reported in my previous paper. Occasionally a staphylococcus grew; epidermal auto-inoculations with *Staphylococcus albus* were found to be negative in the previous report.

As yeast fungi are known to exist on normal skins, it is not surprising that they can grow as saprophytes on other dermatoses. Positive yeast cultures were obtained from palmar scaling lesions in two persons who presented other dermatoses; one was a squamous syphilid and the other, psoriasis. This occurred because all scaling palmar lesions as a routine had been cultured as well as examined microscopically; six of seventeen positive cultures listed as from the hands and fingers in the table were confined to the palms. Greenbaum and Klauder [8] were able to obtain positive yeast cultures from approximately 25 per cent of 150 patients who presumably had normal skin surfaces, and these strains did not differ in any respect from their known pathologic strains. The biologic features of the yeast species recovered in my series are being investigated.

The cases which command particular attention in this series are of the so-called seborrheic dermatitis and infantile eczema group, as the inoculation tests were confined to them. The following cases will serve as clinical types of this series, which I have regarded as of superficial yeast infection and in which *Cryptococci* were secured in culture.

REPORT OF THE AUTHOR'S CASES

CASE 1.—J. S., a boy, aged 11, had had an intermittent eruption consisting of crusting discrete areas on the face for two years; these were found especially around the chin, external nares, the eyes and behind the ears. *Cryptococcus* grew in culture from several areas. The patient's general health had always been excellent; results of a general examination were negative, except for rather large tonsils. No history of mycotic contact in the immediate family could be elicited. No demonstrable focus was present in the toes.

CASE 2.—E. H., a girl, aged 15, had presented erythematous crusting and patchy scaling lesions on the side of the neck, nucha, retro-auricular and antecubital spaces of varying severity since she was an infant. When she was an infant, according to the father, the eruption on the face had been diagnosed as infantile eczema. There was a suggestive family history of multiple mycotic infections. The father had had what seemed to be fungus infection of the hands. The mother had had the infection on the feet for many years, and a younger sister had had infantile eczema. No sensitization diseases, such as asthma and hay-fever, were present in either the patient or her family. Cultures from the right retro-auricular and right antecubital spaces were positive. Results of the general examination of the patient were negative.

CASE 3.—F. C., man, aged 62, had had a recurrent scaling and crusting eruption in the bend of the elbow and flexor surfaces of the forearms and legs for

8. Greenbaum, S. S., and Klauder, J. V.: Yeast Infections of the Skin, Arch. Dermat. & Syph. **5**:332 (March) 1922.

twenty-seven years. When he came under observation, there was an acute exacerbation in these places and also on the side of the neck. The lesion on the left side of the neck was a large, oval, erythematous area about 7.62 cm. long and 2.54 cm. wide; it had a typical geographic border with overhanging dried crusts and scales, which is a distinctive feature of some superficial yeast infections as noted by Beeson and Church.[9] Cultures from this border as well as from the left antecubital area were positive for *Cryptococcus*. Lesions between the toes were negative for mycelia, both microscopically and culturally. The patient had a syphilitic arteriosclerosis and myocarditis.

INOCULATION INTO HUMAN BEINGS

The pathogenicity of fungi for man is best demonstrated by their inoculation into human beings, but progress is naturally seriously handicapped by a paucity of volunteers. Animal skin with its usual thick, hairy covering is not suitable for inoculation for superficial epidermal invading fungi. Since my preceding report, I have had the opportunity to make a limited number of inoculations, using the same technic as heretofore described. Auto-inoculations were made into three adults who had widespread eruptions similar to those already described; in two the reaction was strongly positive and in the other, moderately positive. The following résumé will serve as an example of all.

Case 4.—C. L., a youth, aged 19, a barber, had had an eruption on the back of the hands intermittently for five years. It had become aggravated within the last month and extended to both antecubital areas, the sides and front of the face and to the left heel. The areas on the dorsa of the hands and the left heel were large erythematous, crusting patches heaped with adherent crusts and deep-seated vesicles irregularly placed at the periphery of some of the lesions. There were many confluent erythematous, scaling patches on the face, with involvement of the vermilion borders of the lips. The flexures of the elbows had large, scaling, thickened, mildly erythematous areas occupying each antecubital area. The results of the remaining examination were negative except for interdigital erosions between the toes. Scrapings were taken from the lips, sides of the face, antecubital areas, the left heel, between the toes and from the dorsa of the hands for direct and cultural study (Sabouraud's dextrose medium). Examination after potassium hydrate digestion showed definite budding fungi in the interdigital areas of the feet, heel and dorsa of the hands, but mycelia of any type could not be demonstrated. While there were a few round, double contoured organisms in the preparations from the other areas, there were no definite budding forms, hence the diagnosis of yeast fungi could not be made absolutely from the extemporaneous preparations. *Cryptococcus* was recovered in culture from the toes and the back of the hand, but not from the other areas. In this particular case, no other molds grew in the cultures positive for *Cryptococcus*.

The patient was eager for inoculation tests because the dermatosis interfered with his occupation as a barber. A small loopful of autogenous *Cryptococcus* culture was inoculated into the sound leg just below

9. Beeson, B. B., and Church, G.: Superficial Yeast Infections of the Skin and of Its Appendages, Arch. Dermat. & Syph. **13**:643 (May) 1926.

the external malleolus and controlled by superficial scarifications about 1 inch proximally without implantation of fungus. The transplanted material was transferred to the skin without any previous cleansing, but scarified most superficially. The artificial lesion and control were kept covered with sterile gauze dressing to prevent gross contamination, especially external traumatic irritation. Microscopic examination of the yeast culture used in this experimental work did not reveal any bacterial contaminants, and bacteria never grew in secondary culture plantings from the original. On the fourth day, oozing and crusting on an erythematous base had appeared at the site of the inoculation. On the tenth day, there was a crusting, elevated area with an erythematous border which extended beyond the bounds of the original scarified area. Removal of the crust left a rather deep, eroded area, much deeper than the original scratches. The control area had completely disappeared. On the fourteenth day, the induced lesion was prominent, with a central adherent crust with a distinct bluish red areola, often observed in the more chronic patches, especially on the dorsa of the hands. On the twenty-third day, the oozing and crusting manifestations had disappeared from the positive inoculation; all that remained was a purplish-red area which diminished to some extent by the end of the fourth week when active treatment was instituted.

Yeast was repeatedly recovered in culture from the induced lesion. The induced lesion proves the pathogenicity of the yeast fungus, as far as seems possible, and points to these organisms as one of the five possible etiologic factors already enumerated. A gratifying feature was the complete recovery under mild fungicidal treatment (remaining so now for nine months) and the ability of the patient to resume his former occupation as a barber.

HETERO-INOCULATION

Three yeast cultures obtained from patients with eczema like those just described, which were considered pathogenic, were inoculated into the backs of three adult volunteers suffering from varicose ulcers and who did not have any mycotic foci. Two of the volunteers did not develop anything suggestive of positive takes; the third showed slight, evanescent lesions in two of the three inoculations. This small series of hetero-inoculations on normal skin surfaces would point to a favorable skin background as a necessary basis, a prerequisite for the production of lesions in certain persons. These failures stand out in contrast to the positive lesions on patients who presented eruptions originating from pathogenic yeast fungi.

INFANTILE ECZEMA

In my previous paper, observations and cultures were reported suggesting the possibility of pathogenic yeast in the causation of some types

of infantile eczema. No opportunity of culture auto-inoculations in any cases of infantile eczema has been afforded, but clinical analogy for a mycotic basis, at least in some cases, remains unchanged by further observations in additional cases. No claim is made that all cases of infantile eczema are due to yeast fungi, but observations up to the present time suggest that they may be the cause; further extensive experimental inoculations will have to be performed to determine whether they are pathogenic or saphrophytic. A case illustrative of positive yeast culture will be cited.

CASE 5.—F. M., an infant, aged 6 months had an oozing, thickly crusted eruption on the face of four months' duration. In addition, there were crusted areas in the antecubital, popliteal and crural regions. *Cryptococcus* was grown on cultures taken from the face and from one antecubital space. The eruption completely disappeared under fractional roentgen-ray treatment and local fungicidal treatment; this result occurs uniformly in this type of patients, especially if the eruption is not of too long standing. As stated before, positive *Cryptococcus* cultures have been secured in approximately 77 per cent of these cases, this patient being a typical example.

One hetero-inoculation has been possible.

CASE 6.—M. B., a girl, aged 11 months, who had had infantile eczema of the face and arms for five weeks, was inoculated on the back with three *Cryptococcus* cultures grown from similar cases of infantile eczema. A small loopful was implanted on several small superficial scarified linear marks and controlled by similar scarification without any yeast implantation. The parents were most enthusiastic about the experimental work, because a few more lesions on the back meant little compared to the numbers on the involved areas. On the fourth day, two lesions showed positive inoculations; the third was moderately positive; the control was negative. By the eighteenth day, all of the lesions had involuted spontaneously. On cultures from her face *Cryptococcus* had been grown in several plantings by this time.

INFLUENCE OF TRAUMA ON ARTIFICIAL LESIONS

Keller [10] called attention to the rapid involution of experimentally produced yeast lesions in the absence of treatment in contrast to the rebelliousness to treatment of acquired infections attributed to yeast etiology. From my own work, I can subscribe to this observation, but there are other factors supported by personal experimental data which tend to modify its significance. I refer to the extraneous factor of trauma, especially the self-inflicted irritation from scratching and rubbing which tend to aggravate any existing lesion. These are absent from artificially induced lesions because they are protected by bandages, and other means, as a part of the experimental precautions. A specific instance of several positive inoculations, which have been aggravated intentionally, can be cited.

10. Keller: Dermat. Ztschr. **49**:33, 1926.

CASE 7.—A man, aged 42, had an active fungus eruption of the hands, enough to incapacitate him for several months. Cultures of *Cryptococcus* and several *Hyphomycetes* were inoculated on the back (this investigation with *Hyphomycetes* was being performed in connection with another line of research). On the sixth day after inoculation, scrapings were vigorously taken by microscopic examination from a portion of all lesions. On examination of the lesions two days later, it was found that there had been a marked exacerbation of the induced lesions with a prominent crusting element, especially the one with the implanted *Cryptococcus* culture, and with this there was some marginal extension of the existing lesion. The aggravation was far greater than artificial lesions ever develop in their ordinary course of evolution, according to my experience. The trauma was repeated several times (a sharp sterile scalpel being used), each time with a resultant exacerbation.

It appears from this that continued irritation at short intervals could also prolong lesions of "spontaneous" origin. Even fungus eruptions of admitted *Hyphomycetic* origin (ordinary "ringworm") of the extremities will often improve without medical treatment; hence artificially produced lesions could easily involute when protected from external trauma. In the experiments natural conditions were not imitated in the fullest sense, when the induced lesions were perfectly protected. Of course, the more favorable the cutaneous background, the more persistent the natural lesions would, no doubt, tend to become, especially if aggravated by mechanical or other artificial means.

COMMENT

It is not surprising that yeast species should be isolated from extensive superficial dermatoses like infantile eczema and seborrheic dermatitis; their pathogenic rôle remains to be determined. The latter was approached in part from statistical considerations, i. e., the frequency with which a given species was encountered. In these studies, slightly more than 77 per cent of the cases examined yielded yeast cultures; but this can never, per se, be a final pronouncement with regard to pathogenicity.

The second and most outstanding single criterion of pathogenicity is the fulfilment of Koch's postulates. This was accomplished in these studies by both auto-inoculation and hetero-inoculation on human volunteers. Furthermore, although restricted in numbers, these attempts were successful in 100 per cent of the trials, whereas similar inoculations on nondermatitic subjects were negative. It appears thus that the element of the soil enters into the situation.

As to the best subjects for inoculation, Benedek,[11] in a recent paper, stated that he does not believe that animal tests are valid indicators of

11. Benedek, T.: Ueber Cephalosporiose: Ein Beitrag zur Kenntnis der seltenen Mykosen unter besonderer Berücksichtigung der Serumdiagnose, Arch. f. Dermat. u. Syph. **154**:96, 1928.

pathogenicity of fungi found on man. He emphasizes the fact that if one is going to test the pathogenicity of a fungus, it must be done on the human skin; this statement substantiates the value of human inoculations as I have practiced in this communication and in my previous paper. I further believe that my own plan of endeavoring to use the patient himself is after all the only irreproachable test of pathogenicity when one is dealing with such a structure as the skin.

In connection with dermatologic research, the fullest attempts should be made to imitate all the original conditions of disease when one is attempting to reproduce lesions experimentally. Thus, the selection of an appropriate substrate (individually known to be predisposed) is desirable although not always possible. If irritation and moisture are features of the original dermatoses, these should be supplied in the experimental areas, etc. It is obvious that there must be some nice unknown adjustments between different skins and different conditions which in general determine the development of the multitudinous variants of eczema, and if one aims experimentally to reproduce precisely the clinical disease, one must call on and endeavor to include all possible factors concerned.

CONCLUSIONS

The involution of artificially produced fungus lesions can be materially delayed by mechanical irritation, a point to be remembered in making an appraisal in connection with experimental work.

While *Cryptococci* are known to inhabit normal skins, a limited series of successful inoculations of cultures on their respective hosts indicate their possible pathogenicity in the syndrome known as seborrheic dermatitis, especially of the exudative type. The postulates of Koch have been fulfilled; the fungus was recovered from the "artificial" lesion.

Clinical analogy and hetero-inoculations point to pathogenic yeast fungi as an etiologic agent likewise in certain types of infantile eczema.

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Abstracts from Current Literature

Change in the Reaction of the Skin to Histamine as Evidence of Deficient Circulation in the Lower Extremities. Isaac Starr, Jr., J. A. M. A. **90**:2093 (June 30) 1928.

The author describes his experiments, based on the work of Sir Thomas Lewis, in which he finds that in normal persons, the reaction of the skin of the feet to the introduction of histamine is prompt and complete; but in cases in which there is deficient circulation, the reaction is altered. This occurs even when the results of clinical examination are essentially negative, and may thus be of value in diagnosing circulatory deficiency before catastrophe ensues. Technic and experiments are fully described.

Rattner, Chicago.

A Case of Tularemia in New York State. J. A. Murphy, J. A. M. A. **90**:2101 (June 30) 1928.

Murphy describes a typical case of tularemia occurring in a steward in a club. It followed the preparation of rabbits for the table. The original atrium was on a finger. It is said to be the first case of tularemia reported from New York.

Michael, Houston, Texas.

Skin Eruptions with Phenobarbital (Luminal). W. C. Menninger, J. A. M. A. **91**:14 (July 7) 1928.

The author reports three cases with skin reactions of 400 cases in which phenobarbital (luminal) had been used. A thorough review of the literature is given. Reactions vary from the urticarial to the scarlatina-like maculopapular erythemas. The latter are frequently associated with pyrexia and other systemic toxic symptoms. The author gives his views concerning the pathogenesis of the eruption, and cites results of attempts at immunization.

The Serum Treatment of Erysipelas. W. S. McCann, J. A. M. A. **91**:78 (July 14) 1928.

The author analyzes results obtained in 115 cases in which the patients were treated by him. He concludes that the true value of the serum treatment of erysipelas cannot be established until an analysis can be made of a long series of cases with simultaneous controls untreated by the serum, so that seasonal and annual variations will be controlled. The treated and control series should be balanced, he believes, according to the ages of the patients and the distribution of lesions. Previously published reports are open to objections on the score of inadequate controls. The author's results, however, do not prove that serum has no value.

Two Cases of Sporotrichosis Infection Due to Barberry. Jackson Blair and Norman Yarian, J. A. M. A. **91**:96 (July 14) 1928.

The first patient was treated with sodium iodide by mouth, and the lesions were incised. The second patient ran a septic course, with severe lymphangitis. He was given potassium iodide and the lesions were not incised. Both patients were sick about the same length of time—from ten to twelve weeks.

Herpes Zoster as an Early Symptom of Spinal Cord Tumor. Gordon R. Kamman, J. A. M. A. **91**:320 (Aug. 4) 1928.

Kamman's patient complained of indefinite pains in the lumbar region periodically for one year prior to an outbreak of herpes zoster involving the right sixth intercostal nerve. The attack was severe and was accompanied by paresthesias

in the right leg. The patient had residual pains; the legs became progressively weaker; a succession of symptoms occurred which finally led to a diagnosis of tumor of the cord one year later. Operation revealed an intradural cyst at the level of the fourth dorsal vertebra.

RATTNER, Chicago.

HAEMANGIECTATIC HYPERTROPHY (PARKES WEBER). A. M. H. GRAY, Proc. Roy. Soc. Med. **21**:65, 1928.

This was a case of extensive congenital nevoid condition of the right lower leg in a boy, aged 10½. The abnormality had been noted since he was 2 or 3 years old. The right leg was larger and darker than the left; dilated veins were present in the region of the knee. The right lower leg was 4.5 cm. longer than the left, most of the increased length being in the leg, not in the thigh. The increased length of the femur was 1 cm., and below that 3.5 cm. There was also a difference in girth, that of the right leg being greater by 1 cm. Pulsation in the right femoral artery was greater than in the left. On the right leg this could be felt down to the popliteal space; on the left, only 2 inches below the groin. There was an area of abnormal pulsation internal to the patella, and extending down the anterior surface of the leg. The pulsation disappeared on compression of the femoral artery. There was a thrill in the right femoral artery and over the enlarged vessels under the patella which, Sir Thomas Lewis thought was of arterial origin. There was also distinct pulsation in the veins. Over the femoral vessels there was a continuous murmur. The right ankle was of the same temperature as the left, but in the region of the right knee there was a difference of 2.7 C., and at the right thigh 2.1 C. The right leg was 3.75 C. hotter than the other. Obliteration of the right femoral artery had much greater effect on the pulse rate than obliteration of the left femoral artery, indicating lesser resistance to outflow on the right side. There was a general increase in the circulation of that leg, and probably a communication existed between arteries and veins.

GUY, Pittsburgh.

THE MALARIA TREATMENT FOR SYPHILIS. J. WAGNER-JAUREGG, Ann. de dermat. et syph. **9**:449 (June) 1928.

The author opens his article with a discussion of the diagnostic difficulties of early paresis. Once, however, that diagnosis is beyond dispute, malaria therapy should be instituted immediately. Otherwise, valuable time is lost since it has been demonstrated that the earlier the treatment is begun the better are the results. He has obtained 83 per cent remissions in paresis in the early stages with malaria therapy; other authors have obtained from 20 to 30 per cent. Patients in whom the only evidence of paresis is found in the spinal fluid (preparetic stage) should also be given malaria. To Kyrle should go the credit for first demonstrating the value of malaria treatment in this stage. Thoroughly satisfactory results are obtained.

In tabes conditions are somewhat different, and malaria combined with specific remedies is advised.

Only tertian malaria should be employed and on the average eight chills allowed.

Wagner-Jauregg discusses the proposal to treat persons with secondary syphilis with malaria but reserves his own opinion, though apparently favoring the usual specific remedies. He ends by remarking that in syphilis it is not a question of the superiority of one method, but the proper choice of all available remedies to the individual case. The syphilologist must not only consider the present state of his patient but must think of his future as well.

ATROPHIES AND SYNECHIAS OF THE NAILS OF HEREDITARY SYPHILITIC ORIGIN. P. RAVAUT and MONNEROT-DUMAINE, Ann. de dermat. et syph. **9**:461 (June) 1928.

The authors differentiate between syphilitic ungual dystrophy of congenital and of noncongenital origin. The latter is rare. They report a case in which deformations of the nails was first noted when the patient was 6 years old. There was a

slow progression of the disorder. Varying grades of dystrophy of the nails were present. Longitudinal striation, atrophy and crumbling of the free border were the most prominent features. Not all of the nails were affected. The patient had a partially positive blood Wassermann reaction. Definite information concerning syphilis in the patient's antecedents is not reported.

LESIONS OF THE DUCTLESS GLANDS IN HEREDITARY SYPHILIS. J. PAYENNEVILLE and F. CAILLIAU, Ann. de dermat. et syph. **9**:469 (June) 1928.

The authors' investigation consisted in histologic and parasitologic study of the endocrine glands in children who died with manifest congenital syphilis. They detail four cases: three in which myxedema and one in which acromegaly were associated with congenital syphilis. Several other infants were studied, but in them the interpretation of the endocrinous symptoms was more difficult. As a result of their study, the authors state that in congenital syphilitic persons who present endocrinous disturbances, histologic examinations of the endocrine glands show the characteristic pathologic changes of syphilis and often the presence of *Spirochaeta pallida*. The lesions usually begin in the trabeculae of the connective tissue of the gland. These histologic changes are probably constant in congenital syphilis and it seems logical to deduce that these lesions are the basis for the clinical dystrophies of the congenital form of this disease. The authors think that it is probable that the same conditions often occur in acquired syphilis and explain the endocrinous symptoms frequently encountered in the acquired type.

ROBERT LEE'S DISEASE (CREEPING ERUPTION). THE PUBLICATION OF CAZENAVE. T. PHOTINOS, Ann. de dermat. et syph. **9**:486 (June) 1928.

The author proposes the designation Robert Lee's disease for creeping eruption because it was that author who in 1874 first described the disorder. Two cases observed by Photinos are then reported. He was unable to discover the parasite, but sections showed the usual histologic structure. In the second case, a spontaneous cure occurred in forty days. The articles on the disease since 1926 are reviewed. Up to that time larva of *Gastrophilus* alone had been incriminated, but since, several other causative species have been discovered. Cazenave tried to make a separate type out of the cases observed by Kirby-Smith, Dove and White, but the author rejects this proposal, especially since Fülleborn experimentally produced the disease in himself with *Uncinaria stenocephala*, and in a form resembling the American cases.

TWO CASES OF GENERALIZED FAVIFORM TRICHOPHYTOSIS. J. GOLAY, Ann. de dermat. et syph. **9**:508 (June) 1928.

Two young children of the same family presented disseminated, round or polycylic patches with definite margination and squamous and infiltrated centers. The scalp and nails as well as the glabrous parts were affected in one of the cases. A culture was obtained of *Tricophyton discoides*.

MICHAEL, Houston, Texas.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

CHRONIC ARTHRITIS DEFORMANS OF HEREDOSYPHILITIC ORIGIN. L. RICCIARDI, Pediatria. **36**:395 (April 15) 1928.

As evidence for the syphilitic nature of the arthritis deformans in two children, aged 9 and 11, respectively, Ricciardi gives: the nocturnal exacerbation of the pain, independent of movement; the strongly positive Wassermann reaction and

the total disappearance of the pain following syphilitic treatment. The swelling of the joints affected still persists, but is much less. The limitation of movement has been, to a great extent, relieved, and the general condition is much improved. Ricciardi is convinced that chronic arthritis deformans in children is often due to congenital syphilis. An early diagnosis must be made in order to apply syphilitic treatment in time to prevent deformation of the joints.

BLOOD IN LEPROSY. L. DE MARVAL, Semana méd. **35**:1034 (April 26) 1928.

De Marval examined the blood of 100 lepers of all types. Twenty had a leukocytosis exceeding 10,000; eight had less than 5,000 leukocytes; in seventy-two cases the numbers ranged between 5,000 and 10,000. The average count for all types of leprosy was 8,100; in the tubercular variety it was 9,200; 7,000 in the nervous type; 8,000 in the maculo-anesthetic type, and 8,000 in the mixed type. However, in all cases with leukocytosis an infection also was present. The author concludes that pure leprosy is not accompanied by leukocytosis. There was little change from the normal in the erythrocyte count. The average eosinophil count for the 100 cases was 4.48 per cent. Eosinophilia is characteristic of leprosy. The highest percentage in the tubercular form was 11.8 per cent; in the nervous form, 19 per cent; in the mixed form, 20.5 per cent and in the maculo-anesthetic form, 9.5 per cent. The average was highest in the nervous form, 6.5 per cent, and lowest in the maculo-anesthetic form, 3.42 per cent. Among more than 30,000 leukocytes counted, only three myelocytes were seen. The average for the neutrophils was 62.89 per cent; for the lymphocytes, 23.74 per cent. The monocytes were always increased in number, the average being 8.2 per cent. This is taken as an indication of unusual activity in the reticulo-endothelial system and was most marked in the maculo-anesthetic form, 9.2 per cent. No characteristic observations were made of the platelets or of the staining reactions of the leukocytes. On the whole, the blood picture in leprosy is a highly inconstant one and is not of diagnostic value in any one case.

SKIN CHANGES IN CHRONIC SATURNINE NEPHRITIS. L. V. BLINA, Med. del Lavoro **19**:56 (Feb. 29) 1928.

Blina found skin changes always present in chronic saturnine nephritis. The changes involve chiefly the sweat glands. The changes differ from those in other forms of nephritis in that there is a marked increase of intertubular connective tissue. The tubular changes found in the sweat glands run parallel to the renal changes. In experimental acute lead poisoning, the sweat glands contained granules of lead within the epithelium and the epithelial structures presented marked degenerative changes.

ALLEGED ROENTGEN-RAY LESIONS. R. BALLI, Med. del Lavoro **19**:65 (Feb. 29) 1928.

Balli gives the results of necropsy, including histologic studies of the nervous system, in the case of a girl, aged 4, who died after application of roentgen rays to the head with depilatory intent. He raises the question whether the lesions found were due to local, predispositional factors, to chance determining causes, to general or constitutional predisposing causes, or to a technical error.

GONORRHEAL SERPIGO. E. A. SÁINZ DE AJA and J. ONTANON, Progresos de la clinica **36**:129 (Feb.) 1928.

Among more than 50,000 venereal patients, Sáinz de Aja has seen three cases of a chronic serpiginous erosion on the penis. In the case described, the gonococcus was demonstrated in the involved tissue. The therapeutic test confirmed the diagnosis. Unlike syphilitic serpigo, the gonorrheal type is highly painful.

ETIOLOGY OF ERYTHEMA NODOSUM. M. ARBORELIUS, Hygeia **90**:265 (April 15) 1928.

The eruption is regarded by Arborelius as a nonspecific reaction occurring in various infections, recent tuberculous infection predominating in childhood and youth, other infections of various kinds being the usual cause in older persons. He shows the compatibility of his view with the other present theories of the tuberculous and rheumatic origin of erythema nodosum and of its independent contagious nature. A case of erythema nodosum in acute typical polyarthritis is described.

Society Transactions

MISSISSIPPI VALLEY DERMATOLOGICAL SOCIETY

NORMAN TOBIAS, M.D., *Reporter*

Regular Meeting, Nov. 19, 1927

R. H. DAVIS, M.D., *Presiding*

A CASE FOR DIAGNOSIS. Presented by DR. WEISS.

A white woman, aged 56, presented an extensive eruption over the face, arms and trunk, which had been present since she was 24 years of age. It first appeared on the face and slowly spread to the chest and the abdomen. Frequent urination had been noted since early childhood. She had been treated for mild diabetes by dietary measures only; insulin had never been given.

The primary lesion was a translucent maculopapule from 0.5 to 1 cm. in diameter. The lesions, on involution, left brownish pigmented areas which were so numerous that they had run together to form large patches. In addition to the lesions, numerous dilated vessels were observed in the skin, chiefly on the chest and back with atrophic areas here and there with slight scaling. These observations were made in 1925.

At the time of presentation the patient showed pigmentation, but the papules and telangiectasia had largely disappeared. There was a marked dermographia which was not observed in 1925.

The patient presented a saddle nose, the result of an accident in childhood.

DISCUSSION

DR. WEISS: I saw this patient on two occasions, through the courtesy of Dr. Olmstead who has had her under treatment for a number of years for diabetes. The lesions were more telangiectatic and did not have the urticarial reaction as seen today. The impression I got on first and second examinations was that the condition was poikiloderma atropicans vasculare.

DR. DENNIE: I have seen a similar case in which the patient was treated for three years with insulin. When the use of the insulin was discontinued, the eruption disappeared. I saw another woman who had severe attacks which would appear immediately following the administration of insulin, but would disappear when the treatment was stopped.

DR. PUSEY: I saw a similar care, but the patient did not have diabetes. The condition was finally diagnosed as urticaria pigmentosa.

DR. OTTO FOERSTER: I had a patient with a similar eruption who had been under treatment with insulin for diabetes. After the insulin was discontinued, the eruption disappeared.

A CASE FOR DIAGNOSIS. Presented by DR. CONRAD.

A white man, aged 23, gave a history of an eruption which started on the lower part of the abdomen and on the inner side of the upper part of the thigh; a few lesions later appeared on the upper part of the arms.

The present illness began on May, 1925. Slight itching accompanied the lesions. At the time of presentation, there were many groups of papules which were symmetrical, varying in size and irregular in outline; they were pink with light brown pigmented spots. The primary lesion was a papule. A lighter pigmentation from a previous attack (April, 1927) could be seen. Some of the lesions showed abraded tops due to scratching.

DISCUSSION

DR. CONRAD: This boy was presented on account of the great number of diagnoses that were made. Urticaria pigmentosa and phenolphthalein eruption have been suggested. He has been treated by other physicians for scabies and erythema multiforme. My diagnosis is dermatitis herpetiformis.

A CASE RESEMBLING PITYRIASIS RUBRA PILARIS WITH RECURRENT OUTBREAKS OF VESICLES. Presented by DR. GRINDON.

A white boy, aged 11, was presented because of vesicles which had appeared on the right ear since the patient was 2 years of age; these had recurred each autumn or winter at the same site until 1926. The attacks lasted about one month; at one time the right half of the neck was involved and at the present time there is a patch of vesicles on the left side of the neck.

Six years prior to presentation, dry papules appeared on the feet and hands; these disappeared in a month, but recurred one year previously and have been present continuously. Two months before presentation, the elbows and knees were involved.

At the time of presentation, there were sharply outlined patches, composed of close-set, pink papules, the size of a pinhead, each with a hard horny central plug on the hands, elbows, anterior surface of ankles, upper outer angle of each scapula and about the anus. These were well marked on dorsal surfaces of first phalanges. The palms and soles were thickened and horny.

DISCUSSION

DR. PUSEY: What are those lesions on the ear?

DR. GRINDON: The patient has had attacks of recurrent herpes on the ears and neck.

A CASE FOR DIAGNOSIS. Presented by DR. WEISS.

A white man, aged 65, was presented in March, 1927, complaining of an eruption which first appeared on the right shoulder then spread progressively and appeared on various parts of the skin. The eruption almost disappeared twice, but recurred each time to its former extent or worse. There was occasional mild itching, but no other subjective symptoms were noted. His general health was good. The eruption was distributed on the scapular areas and shoulders, on the buttocks and thighs, on the knees, legs and ankles, and on and about the wrists and dorsal surfaces of the hands. The primary lesion was a pale pink papule or plaque from 0.5 to 2 cm. in diameter. The lesions spread slowly at the periphery and cleared up in the center without scarring, forming a ring sometimes as great as 10 cm. in diameter. The papule or plaque, as well as the borders of the rings, shaded out gradually into the surrounding skin. They were elevated from 2 to 3 mm., and the pink tint was modified by a translucency suggesting edema. They were firm to the touch, but elastic (not infiltrated). The rings had the same quality and appearance and some ran together to form gyrate figures. There were no secondary lesions and no evidence of itching. There were no anesthetic areas nor enlargement of the ulnar nerves.

The Wassermann reaction was negative on April 26, 1927, and again on June 7. Smears from the nose were negative for Hansen bacillus. Biopsy was taken, and sections stained for Hansen bacillus were negative. Occasionally, the urine showed a trace of albumin and an occasional hyaline cast. Elevation of temperature had not been observed. The blood pressure was somewhat elevated.

DISCUSSION

DR. WEISS: This peculiar ringed eruption disappeared at times whether treatment was administered or not. At one time the patient had a profuse outbreak which disappeared without any treatment. The primary lesion was a small

papule, 2 by 4 mm. in diameter. They spread slowly at the periphery and cleared up in the center without scarring, forming a ring sometimes as large as 10 cm. in diameter. The provisional diagnosis was granuloma annulare. At the suggestion of Dr. Engman who saw the case with me, I looked up an article by Grover Wende, who, in 1906, described cases of erythema gyratum perstans. This case seems to correspond with Wende's cases closer than any other I have been able to find. We called it erythema perstans.

DR. MICHAEL: This case seemed to be one described by Darier as erythema chronica migrans, which is allied to Wende's erythema perstans. Since Darier's original description in 1924, several other cases have been reported in the French literature. Not long ago I saw this condition in a patient, in whom the lesions were not as well marked. I read in the French literature where bismuth had been tried successfully, and I gave my patient bismuth with prompt results.

DR. PUSEY: Darier described this condition in 1924, but Wende described it six or seven years before, so it was Wende's disease and not Darier's. I think it represents a picture of chronic erythema multiforme which is occasionally seen where there are gyrate patches with little elevation. To my mind, it is extremely interesting and deserves to have considerable discussion. I think mycosis fungoides, granuloma annulare, leprosy and a persistent form of erythema multiforme can all be taken into consideration. I do not think that any one can give an exact diagnosis on the information presented, but I should like to say that it is Wende's disease.

DR. MCEWEN: I believe that this is a case of erythema multiforme of unusual type and persistency, and I believe that if the man's mouth was cleaned up—i. e., teeth and tonsils taken care of—*Streptococcus viridans* would be found. Incidentally, I should like to see some young dermatologist who is interested in research make a study of *Streptococcus viridans* with special reference to its relation to diseases of the skin. I feel certain if this man's mouth were freed from infection he would stay clear of eruption without medication.

DR. IRVINE: Four or five years ago I had a patient with a severe outbreak similar to this. After she had had her tonsils removed there were no recurrent attacks for a period of four years. This spring she came to me with a similar attack. The lesions resisted all ordinary therapy. After giving the patient a thorough examination, a small piece of tonsil was found. This was removed and within two weeks the condition cleared up entirely, and for a period of three months has remained clear.

DR. TOOMEY: About four years ago, I had a case similar to this, the eruption being limited to the trunk. The lesions were typical and similar to the ones in this case. The patient was given salicylates internally and oil of wintergreen externally. Two years later, my patient returned with dermatitis herpetiformis in the identical areas. The original eruption had not entirely disappeared, but was improved.

DR. SCHALEK: I do not think Dr. McEwen wants to be understood as saying that every case of erythema multiforme is due to focal infection. I had a case in which the patient had recurrent attacks of erythema multiforme for many years, but no focal infection could be found. A test showed a deficiency in hydrochloric acid in the stomach. When this acid was supplied, there was no further disturbance.

DR. BEDFORD SHELMIRE: In the severer forms of erythema multiforme, I have found the intravenous injection of a compound solution of iodine (from 3 to 5 cc. in from 5 to 100 cc. of distilled water) to act almost as a specific for the disease. Patients with the milder forms of multiform erythema do not require treatment. In the severe recurrent types, in which the oral mucous membrane is involved to the extent that the ingestion of food is impossible, the intravenous injection of free iodine has been found of real therapeutic value. In three such cases followed over a two year period, it has been possible to abort recurrences by the early use of this drug. These cases are undoubtedly due to a benign type

of septicemia. Recurrences are probably due to a reinfection of the blood stream from some focal infection.

The patient under consideration presents an eruption which should probably be grouped under the multiform erythemas. While I was treating a large number of patients, presenting various dermatoses, with intravenous injections of a compound solution of iodine to determine the maximum nontoxic dose of the drug, one patient with an eruption identical to the one here today came under my observation. The eruption, of six weeks' standing, entirely disappeared within forty-eight hours, following the intravenous injection of 3 cc. of a compound solution of iodine. I think that it would be interesting, and possibly instructive to try such therapy in this case.

SCROFULODERMA. Presented by DR. GRINDON.

A white man, aged 28, had a condition, which began in August, 1927, consisting of patches distributed over both legs, from the knees to ankles, and one patch on the upper anterior surface of the left thigh. Dark red, infiltrated areas formerly discharged serum in places, with crusting. There were several small ulcers on the patches. The condition was never painful. Biopsy from the lesion on the thigh showed well defined tubercles, marked epithelioid cell reaction and numerous giant cells.

DISCUSSION

DR. GRINDON: I believe that this is a case of scrofuloderma. The condition is improving under treatment with tuberculin and the Kromayer lamp.

LICHEN PLANUS ATROPHICUS. Presented by DR. STRYKER.

A white man, aged 68, had a condition of six months' duration. It started on the left side of the neck as groups of minute white spots, continued with development of new spots until the condition extended downward over the chest and on to the back. The initial lesions were small elevated polyhedral papules with a surrounding zone of pale erythema. The lesions faded and left white scars.

DISCUSSION

DR. PUSEY: I wish to make a diagnosis of scleroderma.

DR. GRINDON: I believe it is scleroderma passing into atrophic stage.

DR. DAVIS: The question of diagnosis is between scleroderma and atrophic lichen planus.

DR. FINNERUD: I think that this is a case of lichen planus sclerosus et atrophicus.

LUPUS ERYTHEMATOSUS DISSEMINATUS TREATED WITH GOLD SODIUM THIOSULPHATE. Presented by DR. WEISS.

A white woman, aged 27, when first seen presented a condition consisting of thin, scaly, slightly atrophic, dull red plaques, varying in size from 1 to 4 cm., and oval and circular in shape. These plaques were distributed in the flush areas of the face, in front of and below the ears and on the neck laterally; there were several on the thighs, and two or three on each forearm. Associated with this was fairly marked cervical adenopathy. Three weeks of treatment with foreign protein therapy did not cause any change in the lesions. Gold sodium thiosulphate was administered, a total of 1.525 Gm. being given. On this treatment, all of the lesions disappeared except in a few spots where exceedingly faint brownish, slightly atrophic scars could be seen. On several occasions during the treatment, the cervical glands became markedly enlarged and painful.

DISCUSSION

DR. WEISS: This was a case of lupus erythematosus in which the patient was treated with gold sodium thiosulphate. The result was the best I had had in the eight or ten patients treated privately and in Dr. Engman's Clinic at Washington University. This was a case of lupus erythematosus of the thin, squamous, discoid type. There were patches on the face, in front of and below the ears and on the neck laterally; several plaques appeared on the thighs, and two or three on each forearm. This was one of the first patients we treated, and we increased the dosage up to 0.15 Gm. Since that time we have been more cautious in the administration of this drug. The patient had a severe reaction, high fever, and the cervical glands became markedly enlarged, in fact so much so that we were afraid they would break down, but they did not. She had general discomfort. She has gained 15 pounds (6.8 Kg.) in weight since beginning treatment, and has made a perfect recovery.

DR. GRINDON: Did you notice any focal reaction?

DR. WEISS: No.

DR. DRIVER: In the disseminate type of lupus erythematosus, one must use extreme care in the use of this drug. We have had two cases recently in which a dose of 25 mg. was given. After three days these patients developed a generalized erythema multiforme, which was associated with a severe chill. I think in this type of lupus erythematosus extreme care should be taken; it is questionable whether it is indicated in these disseminate types of the disease.

DR. TOMLINSON: It has been my experience in the use of gold compounds that the therapeutic result is rather definitely in keeping with the number and severity of the reactions produced.

DR. GOECKERMAN: Two years ago in a meeting of the Chicago Dermatological Association I asked whether any of the members had any experience with the use of gold compounds in lupus erythematosus. Evidently no one had, but those who were familiar with the literature advised conservatism. About six months after this meeting I began the use of 4 amino-2 auro thiophenol carbonic acid with satisfactory results. In nearly 1,000 injections I have not seen any alarming results, although four or five patients developed a readily controlled dermatitis. I purposely eliminated the disseminate types from this form of treatment. With proper precautions in its use, the drug is not dangerous. The results have been satisfactory and I shall continue its use in conjunction with other gold preparations.

DR. ORMSBY: The preparation Dr. Goeckerman used was described as giving somewhat dire results, 1 mg. proving fatal in one case. I felt that was too dangerous a preparation, and was glad when a new preparation was introduced. I would like to know what the comparison is between the two drugs.

DR. O'LEARY: When the use of gold and sodium thiosulphate was suggested by Dr. Schamberg for the treatment of patients with lupus erythematosus, Dr. Goeckerman had been using amino-auro thiophenol carbonic acid for six months. As soon as convenient I started to treat a series of patients with gold and sodium thiosulphate, not because the amino-auro thiophenol carbonic acid had been therapeutically unsatisfactory or had produced unpleasant complications, but mainly for comparison. To date I have treated eighteen patients with gold and sodium thiosulphate, while eight have completed a course of amino-auro thiophenol carbonic acid. The therapeutic results have been more pronounced and the complications fewer in the group treated with amino-auro thiophenol carbonic acid. Perhaps a personal factor may account for the difference in the results of the two drugs noted up to this time.

Dermatologists are fortunate in now having a remedy for the treatment of lupus erythematosus, which seems to be the outstanding advance in dermatotherapy in recent years. The enthusiasm with which it was taken up and the enthusiasm which is noted whenever gold therapy is mentioned indicate the necessity for such a remedy. Nevertheless, I believe it advisable not to permit ourselves to be carried off in this gold rush. Attention to the patient's general condition, the

removal of foci and the ever present possibility of cutaneous reactions and recurrences must not be forgotten. If 50 per cent of the patients treated by gold compounds remain improved, a decided advance in the treatment of this disease has been made.

DR. ZEISLER: I have used the gold preparation in a dozen cases and find the results superior to any other treatment. I believe the patient, in whom it is possible to obtain a reaction gets quicker results.

DR. PUSEY: I was slow in trying gold compounds in the treatment of lupus erythematosus, but in a group of ten or twelve patients I have never seen anything that compared results obtained from the administration of gold solutions. I have seen all kinds of new remedies tried in cases of lupus erythematosus but none of them have proved beneficial. We cannot get away from the conclusion that we have, for the first time, a remedy that is beneficial in the treatment of lupus erythematosus.

A CASE FOR DIAGNOSIS. Presented by DR. GRINDON.

A white woman, aged 50, gave a history, of red, dry, scaly patches with sharp orbicular outlines, varying in size from that of a dime to twice the size of the palm, which appeared on the arms, forearms, buttocks, thighs and the right leg. There was only slight and occasional itching. The little finger on the right hand often cramped. The fingers of both hands, except the thumbs, were often numb and tingled. There was partial anesthesia of the posterior pharyngeal wall.

DISCUSSION

DR. GRINDON: I presented this case because I was uncertain as to the diagnosis. It is more like parapsoriasis than anything else. I have never seen a condition exactly like this. Has any one formed any other conclusion?

DR. MCEWEN: I considered the possibility of a diagnosis of leprosy.

DR. GRINDON: I did not find anesthesia elsewhere.

SCLERODERMA AND DIFFUSE IDIOPATHIC ATROPHY. Presented by DR. LANE (from the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook).

A white man, aged 66, presented a condition which began thirty years prior to presentation as an itching, dry condition of the skin of the feet and ankles, which slowly but progressively extended up the legs and thighs to the buttocks. No other areas have become involved, although there was a slight dryness and scaliness of the hands and wrists. Itching was constantly present and became severe at times. Occasional bullae appeared on the ankles and feet. The eruption was most marked on the lower extremities, the process being more advanced on the feet and ankles. The lower portions of the buttocks were included in the process, but there was a sharply defined border in the midgluteal region which was the upper limit of the condition. There was a dry scaly erythrodermia of the buttocks and thighs resembling "fish skin." This condition was also present on the legs and, in addition, there was a distinct atrophy. The skin on the ankles and feet was thickened, hard, woody and of ivory color.

DISCUSSION

DR. LANE: The duration of this case is thirty years. The condition appeared on the feet, gradually spreading up the legs. There is marked atrophy of skin and thickening on feet and ankles. I believe this is a case of scleroderma or profuse idiopathic atrophy.

DR. PUSEY: I think that the diagnosis is acrodermatitis atrophicans. I do not believe that it is scleroderma.

DR. SCHALEK: I favor a diagnosis of scleroderma.

DR. GRINDON: I believe this is scleroderma passing into the atrophic stage. One of the characteristics was the stirrup strap passing over the front of the ankle. Remember, it had existed thirty years.

DR. IRVINE: This man had a pustular area on one ankle. Ulceration occurs easily from trauma. I believe it an acrodermatitis, as Dr. Pusey says, with sclerotic areas.

A CASE FOR DIAGNOSIS. Presented by DR. MOOK.

A white woman, aged 35, was presented because of soreness of the gums, which began in October, 1925, following a dose of mild mercuric chloride. She went to a dentist for treatment, and later was treated by a physician for "trench mouth" without results. The patient has been under treatment since January, 1926. On examination, diffuse redness of the gums was found with several highly inflamed areas, which probably were the locations of former vesicular lesions. Ulcerations were not found. The teeth were not loose and there was little tartar about them. While under observation the gums remained as described, and at frequent intervals vesicles and bullae would appear on the mucous membrane of the gums and hard palate. These would open, leaving raw surfaces.

DISCUSSION

DR. MOOK: This patient was presented because of the fact that she has had the condition for sometime, and within the last six months has been developing bullae on the soft and hard palates; I thought it might be a case of pemphigus that was just developing. Treatment has not been of any benefit.

DR. PUSEY: Has she been given mercury?

DR. MOOK: Yes, mild mercuric chloride in 1925.

DR. ZEISLER: I think the condition is pemphigus.

A CASE FOR DIAGNOSIS. Presented by DR. ENGMAN.

A white man, aged 22, was presented at the clinic complaining of darkness of the skin ever since he could remember; his immediate complaint was a sore on the left leg which has been present for the past few months and which has been painless. For several years before presentation, the patient has had similar sores, usually following bruises, which had healed leaving a white scar. At the age of 8, a small ulcer appeared on the tongue and buccal mucosa. The patient was treated for five years before it healed. Since the age of 12, his family noticed that his skin was growing steadily darker. At the age of 12, his finger-nails and toe-nails became rough and dry and were gradually lost. There had been no change in the condition for the last five years with the exception of the appearance of white spots on the body.

DISCUSSION

DR. ENGMAN: This case was presented at the Chicago Dermatological Society. There were two brothers with this disease. The patient's skin has been dark ever since he can remember. At the age of 8 years, a small ulcer appeared on his tongue. Since then his skin has grown steadily darker, and those who have seen the case have not been able to classify it.

DR. PUSEY: This is a congenital anomaly of the skin showing peculiar distribution of pigment in the skin. I think it should be called Engman's disease and not Finkelstein's.

DR. SCHALEK: There is often a connection between some diseases of the skin and the ductless glands, and I believe this case belongs to that group.

DR. ENGMAN: Every known test has been made and all the glands were normal.

DR. DRIVER: Some may recall the case, similar to this, that was shown in Cleveland in 1925. Changes in the mouth were identical with this case. The

consensus of opinion was that it also was a congenital anomaly of the skin and mucous membranes.

TUBERCULOSIS OF THE TONGUE. Presented by DR. MOOK. (From the Missouri Pacific Hospital.)

A white man, was admitted to the hospital complaining of pain and swelling in the throat which had been present for about six weeks. Examination revealed an irregular ulceration with surrounding tumor formation on the right base of the tongue extending into the anterior pillar of the fauces. The ulcers were about ⅛ inch (3.17 mm.) in depth, irregular in outline and friable. Lymphadenopathy was present in the submaxillary region.

DISCUSSION

DR. MOOK: This case was presented as a tuberculous lesion of the tongue. The patient also has pulmonary tuberculosis. The condition was thought at first to be carcinoma, but examination showed it to be tuberculous.

PARAPSORIASIS. Presented by DR. MOOK.

A white woman, aged 24, was presented because of a skin disease which was first noticed at the age of 15, and which started on the left arm above the elbow and slowly spread to the limbs and trunk. Itching was not a feature of the eruption. In 1925, she was given injections of mild mercuric chloride and the eruption disappeared only to recur again in a month or two. Later she took a severe "light treatment," and the eruption again disappeared, but recurred after a few weeks. At the time of presentation there were slightly scaly, brownish-red plaques with slight thickening on the arms, forearms, buttocks, thighs and the legs.

DISCUSSION

DR. MOOK: The patient was treated by Dr. Weiss in 1925. The eruption disappeared under an injection of bichloride of mercury, but reappeared in a month. When she received ultraviolet light, the eruption again disappeared, but returned after two weeks.

DR. WEISS: I saw the patient about two years ago with the same type of lesions, and made a diagnosis of parapsoriasis. At that time Dr. Engman made a statement that bichloride of mercury might help the condition. I tried it on the patient, and the condition did clear up. I lost track of the patient, and after two years she returned to Dr. Mook's office and reported that two weeks after the mercury had been discontinued, the eruption came back.

EXTENSIVE LINEAR NEVUS WITH AN ASSOCIATED HEMIATROPHY. Presented by DR. TOBIAS. (From St. Mary's Dispensary.)

A white girl, aged 14, had an extensive nevus involving the left side of the head, including the tongue and buccal mucosa. Associated with this condition was a partial hemiatrophy of the left upper and lower extremities. The mother said the condition was present at birth; hemiatrophy was also noticeable at that time. The nevus, of a mixed verrucous and pigmentary type, covered the entire left side of the face and neck and ended abruptly at the midline. There were four large verrucous patches in the scalp, one over the forehead, an irregular patch over the left cheek and a linear lesion along the midline of the neck posteriorly. There were several red nodules the size of a pea on the left ear. Hypertrophic involvement of the upper gums extended to the second premolar of the right upper gum. The teeth were irregular and widely spaced. A verrucous ridge in the midline of the palate extended posteriorly to the bifid uvula. A hypertrophic nevus involved the entire left half of tongue also. There were several follicular patches with atrophic scarring over the right cheek. There was congenital ptosis of the right upper lid.

DISCUSSION

DR. TOBIAS: The neurologists saw this case, but could find nothing wrong with the central nervous system.

ACUTE PEMPHIGUS TREATED WITH TRYPARSAMIDE. Presented by DR. GRINDON.

A white woman, aged 32, entered the hospital on Jan. 30, 1927, with the history of itchy macules, appearing on the face and arms on January 10 and of vesicles on the macules and on the tongue and palate on January 15. At the time of entrance to the hospital, there were many small blebs on the face, and larger ones on the chest, shoulders and arms; there were a few on the back, abdomen, thighs and vulva. On alternate days, one cubic centimeter of a 2 per cent solution of sodium arsenate was administered intravenously, and a proprietary alleged to have hemostatic properties was given subcutaneously.

On February 11, the blebs were more numerous and larger, covering the upper extremities, buttocks and thighs, in many places they were coherent. The epiglottis was denuded. The temperature was 105 F.; the white blood cells, 14,500; the eosinophils, 15 per cent.

From February 12 to February 17 the temperature was from 101 to 105.5 F. Almost the entire surface was covered with bullae or raw patches. There were painful, denuded, bleeding patches in the nose and mouth. The patient was pale and losing weight rapidly.

Six intravenous injections of tryparsamide in 2 Gm. doses were repeated weekly. There was no untoward reaction or pallor of fundi.

Improvement began a few days after first injection. The old lesions healed and a few new ones appeared. The temperature fell rapidly below 99.5 F.

Since March 25, there were only occasional small vesicles or small lesions on the mouth.

ACUTE PEMPHIGUS TREATED WITH TRYPARSAMIDE. Presented by DR. GRINDON.

A boy, white, aged 5 years, entered the Isolation Hospital June 25, complaining of a dermatitis over the abdomen, attributed to phenol solution, which had been treated from June 9 to June 18. Soon after a few bullae appeared on the left arm and pain in the left ear. Blebs with clear contents were noted on the lower lids, the left ear and left side of face and on the neck and back; they were numerous over the lower half of the abdomen, the inner aspect of the thighs, the penis and the scrotum. There was one on the right knee. There was bulbar and palpebral conjunctivities. The temperature ranged from 99 to 101.4 F. The urine was normal except for a trace of albumin in one specimen. The white blood cells numbered 14,000. *Staphylococcus aureus* was cultured from the bullae.

Tryparsamide 0.33 Gm. was administered intravenously on July 1. There was no reaction. The temperature after this date was 99.4 F.

On July 8, the patient was much improved. Bullae have increased rapidly in number, but no new lesions appeared after this date. Many of the lesions healed. Tryparsamide (0.66 Gm.) was given intravenously. No following rise of temperature or other reaction occurred except that the patient vomited once the next day.

On August 20 all of the lesions healed. There was no recurrence of the condition.

ARGYRIA UNIVERSALIS. Presented by DR. BROCKELMANN.

A white woman, aged 46, said that for thirteen years a laryngologist had painted her lingual tonsil with a saturated silver nitrate solution four times weekly for the first three years, and later two to three times every week. The patient said that she had never felt right since the beginning of the treatment, and complained of weakness, burning in the throat and a rise in temperature. The first discolora-

tion appeared in 1922 a few days after she had convulsions, chills and a temperature of from 104 to 106 F. She first noticed this condition on the gums and mucous membrane of the mouth, then on the teeth, sclerae, skin, hairs and nails. There was a strong metallic taste in the mouth.

DISCUSSION

DR. GRINDON: The woman says she had her throat painted for many years with solution of silver nitrate.

DR. PUSEY: How long was this done?

DR. BROECKELMANN: For thirteen years.

DR. PUSEY: This is the second case of argyria I have seen from the use of silver nitrate in the throat.

DR. GRINDON: There is a local physician who has a patient in whom the condition is more marked than in this patient and which was due to long continued use of mild silver protein to the throat.

DR. BROECKELMANN: I presented this case as I think these conditions are much rarer since silver is no longer used in the treatment of epilepsy and gastric ulcer. I shall at least try sodium thiosulphate, and if this does not do the work, I shall use iodine internally.

DR. ORMSBY: We have tried this preparation in cases of this type over a period of almost a year. In one patient there was no effect. In another there was some improvement, but she was in the hospital which we felt accounted for the change. I feel it would be useless to try sodium iodide, because it has been tried without any result.

LICHEN CHRONICUS SIMPLEX IN FATHER AND DAUGHTER WITH INVOLVEMENT OF THE SAME REGIONS OF THE BODY. Presented by DR. LANE.

A white girl, aged 12, had a condition of three years duration which began as a group of raised papules on the anterior surface of the right knee, and increased in number and spread to form a large patch. There had been little change in her condition during the past two years. Itching was a marked symptom. On the anterior surface of the right knee and the leg was a definite circumscribed patch 2½ inches long and 1½ inches wide (6.27 by 3.7 cm.). This was made up of an aggregation of follicular papules, the size of a split pea. The surfaces were rough and scaly, and extended above the surrounding margins of the skin. The papules were situated primarily at the mouths of the follicles. They were light brown. The patient had received roentgen-ray treatments, with considerable regression of the patch.

A man, white, aged 42, a manufacturer, gave a history of a condition consisting of a few small "pimples" on the left leg of twenty years' duration. Other similar papules appeared in the surrounding areas, and gradually a definite circumscribed patch was formed. These lesions have never disappeared. Seven years prior to presentation, a similar eruption appeared on the left thigh and the upper portion of the left calf. There has always been severe pruritis. The eruption was limited to the lower third of the left thigh on the medial and posteromedial surfaces and on the calf and anterior surface of he left leg. The patch on anterior surface of the leg was in the lower third, and was 5 inches in length by 2½ inches wide (12.7 by 6.27 cm.) and extended above the surface about 1/12 inch (2.11 mm.). This patch was sharply circumscribed, and made up of individual rounded papules the size of a pea with rough, hard, scaly surfaces. It was light brown. Similar lesions of more recent development were noted on the thigh and calf. The primary lesion was a papule located at the hair follicles; These were dark brown, rough, scaly and pierced by hair. The patient had received roentgen-ray therapy to all the areas. There has been a marked improvement of the older patch on the leg, but little change of the lesions on the thigh.

LUPUS ERYTHEMATOSIS TREATED WITH GOLD SODIUM THIOSULPHATE. Presented by DR. VALKER. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A woman, white, aged 27, had a condition of fifteen years' duration. Lesions first appeared on the face and upper extremities, later involving the neck. The only subjective symptom was an occasional mild pruritis. The eruption was distributed over the face, neck, trunk and extremities, particularly the extensor surfaces. The eruption was papulovesicular on the trunk and extremities. There was no definite grouping. The skin of the face was thickened, forming a solid sheet over the seborrheic areas. The surface of the skin was rough and somewhat scaly. There was a brownish pigmentation. Numerous small scars were noted at the sites of previous lesions. The normal skin margins were exaggerated. The lips were dry and scaly.

DISCUSSION

DR. LANE: This patient presented a brownish discoloration, distributed over the face, neck, trunk and extremities, associated with mild pruritis. She gave a history of having this condition for fifteen years. There was no relief until we gave her twenty injections of gold sodium thiosulphate; this was followed by marked improvement. We are presenting this as an atypical case of lupus erythematosis.

SCROFULODERMA. Presented by DR. MOOK. (From the Washington University Dispensary, service of Dr. Engman and Dr. Mook.)

A man, colored, aged 33, was presented at the clinic because of an abscess under the ramus of the jaw, which first appeared in 1916. This lesion spread considerably and discharged pus for several years, healing up about 1921. About three years after the abscess started, an eruption appeared on the neck and slowly spread. The patient now presented hypertrophic papules and plaques on both sides of the neck; all were granulomatous and somewhat infiltrated.

KERATOSIS FOLLICULARIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A woman, white, aged 18, had a condition of seven years' duration, which first appeared as a large "boil" on the forehead. Immediately afterward, numerous small "pimples" were noticed in the anterior portion of the scalp. These same lesions spread quickly over the entire surface of the scalp. Seven years later, a similar eruption appeared on the arms and the forearms, and nine years later, on both sides of the neck. There was mild pruritis at times. The patient has received various local applications, internal medication and roentgen-ray therapy with only temporary improvement. The lesions were distributed over the nose, cheeks, scalp, temporal region, dorsum of forearms, the wrists and the anterior surface of legs. They were hard, dark brown papules varying in size from a pinhead to a split pea with rough horny surfaces. In the scalp the lesions coalesced and moist crusts formed, but alopecia did not result.

DISCUSSION

DR. ORMSBY: I think that this is a case of Darier's disease with hyperkeratosis of the palms and soles.

DR. LANE: The follicular lesions on the palm have disappeared with roentgen-ray therapy. The case was presented as one of keratosis follicularis.

LYMPHANGIOMA CIRCUMSCRIPTUM. Presented by DR. VALKER. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A girl, white, aged 6, at birth had three or four clear "water blisters" on the neck and a swelling of the left upper and lower eyelids according to the mother.

The blisters on the neck persisted and slowly increased in size, and occasional new vesicles have appeared. At times these blisters changed color becoming red and fading again. When the patient was 6 months of age, blisters appeared on the left upper eyelid, some of them clear, others red. At the age of 2 years, similar lesions appeared at the cleft at the left side of the nose. On the anterior surface of the neck was a group of vesicles and bullous-like lesions forming a patch the size of a half dollar. Some of these were clear, apparently containing a watery fluid, and others were blood-tinged. Similar lesions were present on the left upper eyelid and the left side of the nose. The lesions varied in size from that of a pinhead to a large bean. When the surface was punctured, a blood-tinged fluid exuded. At times there was a marked painful inflammatory swelling of the left cheek and of both eyelids on the left side, which was usually accompained by a bloody discharge from the left nostril.

DISCUSSION

DR. ORMSBY: It is interesting to see these patients without any labels, but I think it would be interesting now for the person presenting the case to tell us under what category he presented it. If we all agree, we can pass on to the next case.

DR. LANE: This case was presented as lymphangioma circumscriptum, and to show improvement of lesions on neck with applications of carbon dioxide snow.

LUPUS ERYTHEMATOSUS TREATED WITH GOLD AND SODIUM THIOSULPHATE. Presented by DR. WEISS. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

This patient has shown a marked improvement under the administration of gold and sodium thiosulphate. Unless the drug was given with great caution she reacted quickly with severe stomatitis and angina.

DISCUSSION

DR. WEISS: This is a case of lupus erythematosus in which the patient has been treated with gold sodium thiosulphate. Results were not as good as in other cases reported. The patient had to be treated cautiously or severe stomatitis and angina would follow the treatment.

NEVUS UNIUS LATERIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white woman, aged 39, had an eruption consisting of raised rough, warty-like nodules extending from left buttock down the thigh and leg to the foot, which had persisted from birth. These lesions spontaneously disappeared on the thigh, leg and foot but remained unchanged on the buttock and knee. Itching was severe, particularly after bathing.

DISCUSSION

DR. LANE: The patient is presented on account of the unusual spontaneous disappearance of lesions on the thigh, leg and foot with no regression of eruption on the buttock and dorsum of the knee.

ERYTHEMA INDURATUM OR SARCOID. Presented by DR. VALKER. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white woman, aged 30, said that she had noticed a swelling of both ankles two years prior to presentation. This edema persisted, and seven months later red spots appeared on both legs. These spots never entirely disappeared, although some lesions involuted partially and others completely, but they were quickly

replaced by similar nodules in adjacent areas. The lesions were tender and painful. There was no tendency to ulceration although the surfaces were scaly at times. Both ankles were edematous.

DISCUSSION

DR. LANE: The case showed raised nodules on the anterior surfaces of the legs varying in size from that of a hickory-nut to that of a Brazil-nut; the nodules had the gross appearance of erythema nodosum, but the history of the case and the duration suggests sarcoid.

DR. FINNERUD: I think that the condition might be erythema induratum from the history and clinical appearance of the case, but microscopic sections do not show any evidence of it, or of sarcoid.

DR. OLIVER: I recently had a patient who had two attacks of lesions similar to these. They appeared on the anterior tibial surfaces and sides of the legs, and unlike erythema nodosum, several of them broke down. Both attacks cleared up immediately on extraction of diseased teeth. I examined this girl's teeth. I would suggest having a roentgenogram made of them and then extracting the diseased ones.

LICHEN PLANUS LIMITED TO THE GLANS PENIS AND BUCCAL MUCOSA. Presented by DR. MOOK. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A colored man, aged *22*, presented a thickened bluish-red, plaque, on one side of the glans penis, apparently made up of a group of papules. On the buccal mucosa and on the vermillion of the lip, grayish, slightly thickened patches were noted. There were no lesions elsewhere. Itching was severe.

DISCUSSION

DR. MOOK: This case was presented as one of lichen planus limited to the glans penis and buccal mucosa. Frequently, the lesions are only on the penis and buccal mucosa and not on the wrists and other surfaces of the body.

GRANULOMA INGUINALE. Presented by DR. MOOK. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A colored man, aged *29*, was presented because of lesions which first appeared at the anus following an operation for "fistula." They slowly spread anteriorly and posteriorly. At the time of presentation, there were raised granulomatous masses between the buttocks, extending from the top of the gluteal cleft to the scrotum. The edges were raised and succulent, and the opposing surfaces ulcerated and covered with a grayish, foul discharge.

DISCUSSION

DR. MOOK: Clinically, this case is presented as granuloma inguinale. The microscopic work has not been done.

DR. WEISS: Smears that were made from the depths of the inner border of the lesion were negative for specific organisms. The Wassermann report was not received at the time the history was made.

A CASE FOR DIAGNOSIS. Presented by DR. WEISS. (From the Washington University Dispensary, service of Dr. Engman and Dr. Mook.)

A white woman, aged *60*, was admitted to the clinic because of dull red, wheal-like erythematous plaques (from 1 to 4 cm. in diameter), appearing on both forearms. The history was that when these plaques disappeared brownish spots were left, and the eruption reappeared in the same brown spots. There was no history of taking candy cathartic, or similar drugs, but she had taken "Schoenfeldt's Tea" occasionally. The patient was given *2* grains (0.13 Gm.) of phenol-

phthalein without any effect on the lesions. The patient also presented a patch of chronic dermatitis below the left elbow, which has been present a long time and apparently did not have any connection with the eruption described.

DISCUSSION

DR. WEISS: There is a patch of chronic dermatitis or lichen planus hypertrophicus below the left elbow. We thought at first that the eruption on both forearms was caused by the use of phenolphthalein but the patient did not respond to the administration of phenolphthalein nor did she give a history of taking any drug except "Schoenfeld's Tea," which I understand does not contain this drug. A diagnosis of lichen planus was suggested; some one else thought it possibly might be lupus erythematosus of the disseminate type. All the brownish patches on the arm showed atrophy and two or three showed some definite recurrent scales. The patient has not been thoroughly studied yet. I am inclined to think it is hypertrophic lichen planus, although that has not been proved.

HEMANGIOMA OF THE LEFT UPPER EXTREMITY. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

An infant, white, aged 27 months, was presented at the clinic because of a condition which had been present since he was 3 months of age. At that time red spots appeared on left arm, forearm and hand; these had faded at times but always recurred. There was no itching, but there was a marked hyperhidrosis of the affected areas. The distribution was limited to the left upper extremity and involved the posterior axillary fold, lateral and posterior surfaces of the arm; the anterior surface of elbow; the lateral, medial and posterior surfaces of the forearm and wrist; the dorsum of the hand extending to the proximal phalanx of the thumb, second and third finger and the middle phalanx of the fourth finger. The skin in these areas was discolored, varying from a light pink to a deep red; it was soft, smooth and the involved areas were not raised above the surrounding cutis. The arm had a mottled appearance, but the color deepened as the hand was reached and there was present a serpiginous and gyrate disfiguration with deep red zones surrounding the lighter areas. Redness faded on pressure but returned almost immediately. There was slight change in temperature, the left hand being warmer than the right.

PHENOLPHTHALEIN ERUPTION. Presented by DR. WEISS. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.

A colored woman, aged 29, was admitted to the clinic complaining of an eruption on the buttock which had been present about one year. The eruption was noted on the right buttock next to the cleft and consisted of a large group of brown pigmented spots somewhat irregular in outline. Several of these spots were slightly elevated and hivelike and a slight erythema surrounded them.

DISCUSSION

DR. PARKHURST: Apparently this is an eruption caused by the use of phenolphthalein. The patient gave a history of having taken this drug.

ICHTHYOSIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white man, aged 23, was presented because of a generalized "rash" all over the body, which had persisted since he was 2 weeks old. This at first appeared on the face and gradually spread to other regions. Since that time the patient has never been entirely free of eruption, although during the summer months the condition almost entirely disappears from the front and upper extremities and is much less marked on the lower extremities. There was always a recurrence at onset of

cold weather. Itching was a constant symptom, being much more severe during the winter. The only other subjective sensation was an acute tenderness of the soles when the crusts are removed. The areas chiefly involved were the trunks and extremities, but the forehead, eyebrows and ears were also affected. The skin of the affected regions of the face, the trunk and the upper extremities was dry and scaly and showed a mild erythrodermia and lichenification. Numerous excoriated patches caused by scratching were irregularly distributed over these areas. On the lower extremities, there was a similar process only much more marked, the involvement increasing in intensity from the thigh down to the foot. On the ankles and feet there were huge, thick, cornified crusts, serrated, and much like the skin of a crocodile. Crusts on the soles were about 1/6 inch (0.42 cm.) thick. Callosities are also present on the soles.

DISCUSSION

DR. GRINDON: I think that the condition is scleroderma.

EPIDERMOLYSIS BULLOSA AND LICHEN PLANUS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A colored girl, aged 14, was presented at the hospital complaining of a condition consisting of blisters appearing on the body at the site of trauma; this condition had existed as long as she could remember. The areas most often affected were the ankles, elbows and dorsal surfaces of hand. The blisters would rupture, be succeeded by thin crusts or excoriated spots and would terminate with the formation of white scars. These blisters have continued to appear up to the time of presentation. Seven months prior to presentation, the patient noticed an entirely different eruption on the neck, trunk and extremities, which itched severely. This persisted up to the time of presentation.

There was a tense bulla, the size of an almond, on the inner surface of the right ankle. A bleb was situated on an old healed white scar. There were numerous scars on the forearms, wrists, hands, legs and ankles, which were the remains of old bullae. On the anterior and posterior surfaces of the neck, on the front and back of the chest, on the abdomen, and on the lumbar regions and the buttocks, there was a papular eruption differing entirely from the bullous lesions. These lesions consisted of shiny, flat, angular papules, many of which assumed an hypertrophic character. There were also many brown pigmented spots on the face.

DISCUSSION

DR. LANE: The patient has had bullae as long as she can remember and now presents a epidermolysis bullosa with typical lichen planus. Bullae were on the left ankle today and lichen planus was distributed over the anterior surfaces of the wrists, ankles, legs and cheeks.

DR. WEISS: The condition does not appear to be lichen planus. The lesions over the trunk look like keloidal scars similar to those we see in the negro race.

DR. GRINDON: I feel certain that Dr. Weiss is correct about this. I did not see a lesion that suggested planus to me.

DR. OTTO FOERSTER: I made a diagnosis of lichen planus in this case. After examining the patient carefully, it seemed as if some of the lesions were keloidal as they were in areas in which the patient scratched; so it may be we had keloids along with lichen planus and epidermolysis bullosa.

DR. DEVRON: I think all the gentlemen are right. The patient had epidermolysis bullosa, lichen planus and keloids.

DERMATITIS HERPETIFORMIS. Presented by DR. MOOK. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A colored woman, aged 46, said that her present illness began about six weeks prior to presentation, appearing first on the legs and thighs and then spreading

to the body. Itching was extreme. The eruption was more or less generalized, but was thickest on the legs, thighs, buttocks and trunk. The lesions were circinate plaques, papules and a few vesicles. Grouping was a marked feature of the eruption. Many of the plaques were urticarial. Some of the lesions were almost bullous. Under the left breast there was a large patch of chronic moist, itching dermatitis.

DISCUSSION

DR. MOOK: I presented this case as dermatitis herpetiformis in the negro race, as a matter of interest.

YEAST INFECTION OF THE SKIN. Presented by DR. STRYKER. (From the Dispensary of Alexian Brothers Hospital.)

A white woman, aged 55, was presented because of an eruption which had started twelve years prior to presentation on the interdigital fold of the hands. Two months before presentation the eruption appeared on the inguinal region, and at one time appeared in all folds. The primary lesions was a papulopustular-like lesion followed by erythema and scaling. The organisms have been demonstrated.

A CASE FOR DIAGNOSIS. Presented by DR. ENGMAN. (From the Washington University Dispensary, service of Dr. Engman and Dr. Mook.)

A white woman, aged 32, was seen because of an eruption which was first noticed in the region of the clavicle and upper part of the sternum when the patient was 5 years of age. It slowly spread upward on the neck and face and downward on the chest. There were no subjective symptoms. The eruption was distributed about the face including the eyelids and forehead, on the neck anteriorly and laterally; and on the skin of the upper portion of the thorax anteriorly, especially about the sternoclavicular articulation. The lesions on the neck and thorax were small, circular and oval, rounded pinkish papules, somewhat translucent. The lesions about the face and eyelids were flatter, ligher in color, some being yellowish. Milia were present on the face. Grouping was not a feature of the eruption.

DISCUSSION

DR. WEISS: Syringocystoma is suggested by the peculiar translucent lesions on the chest, face and neck with milium-like lesions scattered over the face. Biopsy done at Barnard Hospital did not show syringocystoma, but some colloidal degeneration.

DARIER'S DISEASE. Presented by DR. WEISS. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A white man, aged 85, was admitted to the clinic complaining of a skin disease which had persisted since he was 20 years of age. It began on the legs and spread slowly to other parts of the skin. Itching was usually moderate, but at times it was severe. He claims that the eruption entirely disappeared following an attack of erysipelas nine years prior to presentation, but recurred again in about four months. The eruption was distributed over the shoulders and extensor surfaces of the arms, forearms and wrists, sparsely over the abdomen and thickly over the sacral area; it was distributed thickly over the popliteal spaces and the anterior and posterior surfaces of the legs and ankles. The primary lesion was a hypertrophic, keratotic papule. Many of these seemed to be follicular and many ran together to form large patches which were verrucous in appearance.

DISCUSSION

DR. WEISS: This case is presented as one of Darier's disease in a patient who has lived to old age.

DR. MICHAELSON: I thought the case was one of lichen obtusus corneus.

DR. OTTO FOERSTER: I think that the diagnosis is lichen obtusus corneus.

DR. GRINDON: I believe that this is a typical lesion of lichen obtusus.

CONGENITAL ICHTHYOSIFORM ERYTHRODERMA IN THREE CHILDREN IN SAME FAMILY. Presented by Dr. WEISS. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

Three children, a girl aged 12 and boy twins, aged 6, were presented before the clinic because of the thickened, hyperkeratotic sharply circumscribed patches on the elbows, knees, popliteal spaces and ankles, which had appeared shortly after birth and had persisted ever since. The lesions were worse in winter than in summer. The lesions were usually a dull red, and at times inflammatory. The girl also has patches in front of the elbows. The boys' lesions have always been of the dry type, but the girl has had numerous attacks of bullous lesions on the toes.

DISCUSSION

DR. WEISS: I think that this condition is erythrodermia congenitale. There are three children in this same family—two of them twins—who present similar lesions, similarly situated. The boy's lesions have always been of the dry type, but the girl has also had bullous lesions on the toes.

CAMPHOR OIL TUMORS. Presented by DR. MOOK. (From the Jewish Hospital of St. Louis.)

A white woman, aged 43, gave a history of appendectomy fifteen years prior to presentation, as a result of which she was very ill and was given many hypodermic injections. She finally recovered and had no trouble until June, 1927, when the arms and right thigh began to pain and swell. On the posterior and lateral surfaces of the arms, there were numerous hard nodules in groups in what appeared apparently to be chains of nodules. These were under the skin, some quite deep, and in the sulci between the muscles. A similar group is found on the lateral surface of the mild portion of the right thigh. In July, 1927, the patient was found to have chronic infectious arthritis and osteo-arthritis of the spine and a positive Wassermann reaction. The lesions at that time were somewhat inflamed and tender with a bluish-red inflammation about them, but this had now subsided.

DISCUSSION

DR. MOOK: This was presented as a case of ordinary paraffinnoma. The lesions did not appear until fifteen years after injection. About seven or eight years ago, when we had a number of such cases, one of the wholesale drug houses told me the paraffin causing these tumors had been on the market for only about one year, and, except for that length of time, a vegetable oil was used.

MELANOMA OF THE FACE. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white woman, aged 75, had a disorder of forty years' duration. This began as a black spot, the size of a pea, in the midportion of the right cheek and spread out from the original site to involve other portions of the cheek. Two black nodules were present when the patient was first seen two years previously to presentation. The nodule on the center of the cheek was about 1 cm. in diameter and raised $\frac{3}{16}$ of an inch (0.48 cm.) above the surface; the other nodule on the lower portion of the cheek was 0.75 cm. in diameter and about $\frac{1}{16}$ of an inch (0.16 cm.) above the surface. Treatment with radium was instituted and the nodules disappeared. During the past twenty months, other raised tumors have appeared in pigmented areas. There has been no appreciable extension of the pigmentation during the past three years.

DISCUSSION

DR. LANE: When the patient was first seen two years ago two black nodules were present, one in the center of the cheek, the other in the lower portion of the cheek both of which were treated with radium (which may be open to some

criticism); these two areas which were treated with radium, however, disappeared. Since then other raised tumors appeared; these are not markedly indurated and do not show any tendency to progress.

DR. PUSEY: I have had several of these cases. The nodules are senile freckles, and they are not always malignant. One patient whom I treated did not show any evidence of tumor and I completely removed the nodule by freezing with carbon dioxide snow. In the course of a year, it recurred. In other cases, degeneration did not occur and in some epitheliomas have developed.

LINEAR NEVUS IN A COLORED WOMAN. Presented by Dr. Mook. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A patient was presented with a lesion which was first noticed at birth. It began at the right shoulder, extended downward on the anterior surface of the arm and over to the right side of the anterior surface of the forearm extending downwards on to the thumb. There were verrucous, elevated, thick linear, nevoid areas, vascular in places, and apparently with a keloidal tendency in spots.

DISCUSSION

DR. MOOK: I think that the diagnosis is nevus unus lateris.

PEMPHIGUS (FIVE CASES). Presented by DR. DAVIS. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

CASE 1.—A white boy, aged 10, who was vaccinated on Sept. 22, 1922, said that the condition began as a pustule on the back of the hand on December 22. On Feb. 6, 1923, when he came to the clinic at the Barnard Hospital, a diagnosis of impetigo contagiosa was made. By February 23, the eruption was general, bullous and somewhat grouped. A diagnosis of postvaccinal pemphigus was made at that time. The patient was placed on a course of treatment of iron cacodylate and a proprietary alleged to have hemostatic properties. There were no material changes (exacerbations and remissions) in his condition for three months, with intermissions in treatment. Then steady, slow improvement began. Sodium arsenate was used from this time on as veins became impracticable to use further. The patient was well and discharged on April 5, 1924. In one case in which sodium arsenate was suspended when the patient was nearly well, a severe relapse occurred, controlled at once by a return to treatment with sodium arsenate. The patient was clinically cured. He was kept on a solution of potassium arsenate intermittently for six months after discharge.

CASE 2.—A white man, aged 59, a salesman, presented himself at the office on Oct. 29, 1924, with a lesion resembling impetigo contagiosa on the left side of the neck, and a history of trauma one month before presentation. Treatment was begun for impetigo. In ten days, the case became clearly one of pemphigus vulgaris. After one month, he disappeared with intercurrent grip. He had been given injections of sodium arsenate and a proprietary alleged to have hemostatic properties for one month.

The patient reappeared and entered Barnard Hospital on Feb. 3, 1925. During six weeks he was given three blood transfusions with only temporary improvement, and then one injection of 1 per cent gentian violet solution (in physiologic sodium chloride solution) was given without effect. He became progressively worse with a general eruption and extensive lesions of the mucous membrane. He was thought to be almost moribund. Treatment with iron cacodylate and a proprietary alleged to have hemostatic properties was begun on March 26, and given daily for one week; then on alternate days for one month. He improved steadily and left the hospital on June 25, in good condition but not entirely well. His condition was about the same for nine months; that is he had mild exacerbations at times. Since February 26, the patient has been treated for one to two months at the office with from one to two months' intermission. He is able to work steadily, but has mild remissions at times.

CASE 3.—A white man, aged 46, a laborer, gave a history of dermatitis herpetiformis beginning about the middle of July, 1926, on the external surfaces of the arms and legs, sparing the face and neck. He was admitted to the clinic at the Barnard Hospital on Nov. 13, 1926, with universal papulovesicular eruption except on the face. Some keratoses and small epitheliomas, following prolonged arsenic medication earlier, were present. The eruption was very itchy. He was put on nonprotein diet, and mercury with chalk internally, and local treatment were given. He improved slowly until May 14, 1927, when the trouble became much worse, and pemphigoid developed. The keratoses became worse. He was admitted to Barnard Hospital on July 8, with universal bullous eruptions varying in size from that of a dime to that of a dollar. The itchings subsided and was gone in five days. A week later (July 20), a severe relapse took place. Treatments with sodium arsenate and a proprietary alleged to have hemostatic properties were begun. There was no change for ten days; he improved somewhat in a week; then severe general relapse, weakness of the heart, edema of the abdomen and the feet resulted. The patient was put on a tincture of digitalis and spiritus frumenti until August 28. Injections of iron cacodylate and a proprietary alleged to have hemostatic properties were then begun. The patient improved steadily. The use of arsenic was discontinued on September 2, for ten days, and a marked relapse began. Treatment with arsenic and sodium arsenate was begun again, and there has been steady improvement since. There had been no new lesions for four weeks before presentation. Arsenic or the proprietary used had not been given for three weeks.

CASE 4.—A white girl, aged 8, was admitted to the clinic and Barnard Hospital on June 3, 1922, with the history of vaccination in February, and of some vesicular eruption before vaccination. The condition was that of a general bullous eruption, which was located especially on the extremities and the genitocrural region. There was no itching. The diagnosis was that of a postvaccinal pemphigus. The treatment consisted of administration of iron cacodylate and a proprietary alleged to have hemostatic properties for about one year with intermissions and exacerbation and remission of the disease. Then sodium arsenate was substituted for the iron cacodylate for six months. She was charged clinically cured on March 29, 1924. The patient was given a solution of potassium arsenate for two and one-half months after discharge. There was some relapse six months later, and the treatment was resumed for three weeks. She was discharged again clinically well, and has remained so far the last three years.

CASE 5.—A white man, aged 59, a drug worker, was admitted to the Barnard Hospital on Feb. 5, 1927, complaining of an erythematous bullous eruption, the distribution of which was general. The configuration was rather grouped. The primary lesions were erythema and the secondary lesions, bullae. Results of the laboratory work were negative. A diagnosis of bullous erythema multiforme was made. Three weeks later, the condition developed into true pemphigus vulgaris, the erythema disappearing. The patient was given tryparsamide, but grew progressively worse until the lesions were universal on the surface and in the mouth also. He was almost moribund. After being put on a treatment of iron cacodylate and a proprietary alleged to have hemostatic properties, improvement began. Whisky did not help in this case. There were several remissions, but the patient was discharged from the hospital on June 30, almost well. He has remained in this condition.

DISCUSSION

DR. DAVIS: I presented these patients to show the good results and effects of treatment with iron cacodylate and a proprietary alleged to have hemostatic properties in cases of pemphigus. Two of the cases were postvaccinal; one started as dermatitis herpetiformis; one as erythema multiforme bullosum and another as impetigo, just as many cases begin. Of course, there have been some deaths, but there have been a number of good results and these were some of them.

DR. ENGMAN: I have watched carefully the treatment in these cases by Dr. Davis, and I have been struck with the improvement. Of course, some

patients will improve without treatment, but these cases were striking. The patients have recovered and are back at work. Of course, we have to be conservative in the treatment of pemphigus. I am more than pleased with the results Dr. Davis has obtained with his methods.

GRANULOMA ANNULARE. Presented by DR. MOOK. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A white woman, aged 50, who was presented at the clinic, had been under treatment for syphilis for several years. In July, 1927, she noticed a small "ring" on the dorsum of the right hand which slowly increased in diameter. She had a similar "ring" about eighteen months before presentation, which disappeared under roentgen-ray treatment. On of the back of the right hand there was an annular lesion about ¾ of an inch (19.05 mm.) in diameter; it was raised slightly above the skin surface, firm to the touch, bluish-red and the top was shiny. There was no central atrophy nor sulcus in the "ring."

DISCUSSION

DR. MOOK: This is a case of granuloma annulare.

DR. WEISS: This patient had a similar lesion which appeared under roentgen-ray therapy. The present one appeared at about the same site.

KERATOSIS FOLLICULARIS. Presented by DR. VALKER. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white girl, aged 15, was presented because of a condition which began when she was 3 years of age. The eruption first appeared on the hand and two years later on the face. At the time of presentation it was distributed on the face, chiefly over the midforehead and sides of nose, the lateral surfaces of the neck, the palmar and dorsal surfaces of the hands, and between the fingers and toes. The lesions were raised, hard light brown papules the size of a pinhead. The eruption has never entirely disappeared, but has slowly and progressively become more extensive. The patient said that in the beginning the eruption resembled "measles." There were no subjective symptoms.

DISCUSSION

DR. LANE: I think that the condition is keratosis follicularis which improved slightly under roentgen-ray therapy.

UNUSUAL FORM OF PEMPHIGUS COMBINING FEATURES OF LUPUS ERYTHEMATOSUS (SENEAR). Presented by DR. GRINDON.

A white woman, aged 55, presented a condition which began in 1920 with reddish patches on the right lower part of the abdomen, spreading to the face and chest. She was treated in the clinic of Barnard Hospital from January to May, 1922. The diagnosis at that time was disseminated lupus erythematosus. Later, a diagnosis of syphilis was made. The Wassermann reaction was negative. In May, a bullous eruption developed; there were chills with each recurrence. In July, she was readmitted with a squamous bullous eruption. The reddish areas from ruptured bullae were covered with foul yellow crusts. There was much scaling. There was discharge from both ears. In 1925, she was admitted to the City Hospital. The surface was thickly spread with flaccid bullae, much as in pemphigus foliaceus, except that borders of coalesced bullae formed bizarre figures with imperfect bilateral symmetry. The treatment was without effect.

DISCUSSION

DR. GRINDON: I did not know what it was best to call the condition; so I quoted the title of Senear's article in the ARCHIVES OF DERMATOLOGY AND

SYPHILOLOGY for June, 1926—"Unusual Form of Pemphigus Combining Features of Lupus Erythematosus." The patient was first seen at the Barnard Hospital in 1922, at which time the diagnosis was disseminated lupus erythematosus. Biopsy showed lupus erythematosus; later a diagnosis of syphilis was made but the Wassermann reaction was negative. Several months later, the patient developed bullae. Then she passed from observation at Barnard and two years later turned up at the City Hospital. The surface was then thickly covered with flaccid bullae much as in pemphigus foliaceus except that the borders of coalesced bullae formed bizarre figures with imperfect bilateral symmetry. The eruption was distributed over the greater part of the body, especially marked on the forearms.

DR. SENEAR: While I did describe these cases, I had only one case which I saw with Dr. Pusey. Dr. Ormsby was good enough to let me use the reports on three of his cases and Dr. Engman and Dr. Mook one of theirs. Shortly after this paper was written, we had another patient who presented a typical picture of lupus erythematosus on the face with flaccid bullae and crusted lesions on the trunk. The patient was admitted to the Hospital of the University of Illinois and rapidly developed a condition like the one in the case presented today. This patient died of septicemia following the formation of a number of abscesses. I really think it constitutes a definite clinical form.

DR. DAVIS: We can add another case. We had a woman at the Barnard Hospital who apparently had disseminated lupus erythematosus. We had hardly begun to treat her when she started to develop what we thought was septicemia. We gave her mercurochrome-220 soluble intravenously. Salivation and diarrhea were produced. The patient recovered from these disorders but died of what resembled acute septic pemphigus in four days.

GRANULOMA INGUINALE (TWO CASES). Presented by DR. GRINDON.

CASE 1.—A colored man, aged 24, a laborer, was presented because of a small fissure which appeared near the frenum and enlarged into an ulcer. At the time of presentation, several large and small prominent papillomatous masses were noted about the pubes and penis. They were tender and bleed easily. The Wassermann reaction was positive. Biopsy showed hypertrophied papillae and acanthosis with purulent infiltration.

CASE 2.—A colored man, aged 30, a waiter, for six years had noticed a small swelling appearing in each groin which enlarged and became fungating papillomatous masses, parallel to the folds of the groin.

DISCUSSION

DR. GRINDON: The case is presented as granuloma inguinale, and the patient is improving under antimony and potassium tartrate given intravenously.

A CASE PRESENTED FOR DIAGNOSIS. Presented by DR. GRINDON.

A colored man, aged 45, presented a condition which began one year before presentation as a small ulcer on the prepuce. It enlarged and gradually destroyed all but about 1 inch of the penis. The corpus spongiosum was enlarged and of woody infiltration throughout. The inguinal glands were enlarged and indurated. Biopsy showed atypical epithelial hyperplasia and marked connective tissue proliferation of the skin and cutaneous tissue. There was infiltration with small mononuclears and some eosinophils.

DISCUSSION

DR. GRINDON: I presented this case for diagnosis. A specialist in genitourinary diseases called it granuloma inguinale, but I thought it was carcinoma. The lesion began one year ago as a small ulcer, which enlarged and gradually destroyed all but about 1 inch of the penis. There were no lesions in the groins. There was lymphadenitis. As far back as one could feel, the penis was of a

woody hardness, and in the scrotum on one side was a hard nodule. I had hoped some one would have examined the case thoroughly and would have noted the matter of the absolutely woody hardness. The results of the biopsy were not informative.

DR. DRIVER: I saw a case almost identical to this showing this woody hardness of the shaft in which a diagnosis of granuloma inguinale was made; the condition responded nicely to the administration of antimony and potassium tartrate.

A CASE PRESENTED FOR DIAGNOSIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white woman, aged 49, had a condition of ten months' duration, which started as a boil on the right side of the forehead, and which was incised by a physician. At the same time she noticed a redness of the arms, which shortly after appeared on the face and neck. Redness has never disappeared and recently has begun on both thighs. For the past three months, the patient had been having blisters on the elbows, which would last for three or four days, discharge serum and pus and then disappear. The areas involved were the forehead, cheeks, chin, anterior and posterior surfaces of the neck, upper portion of chest, extensor surfaces of the arms and forearms, dorsal surfaces of the hands and fingers and the lateral surfaces of the thighs. The skin in the affected areas was deep red, dry, scaly and atrophic. In some regions there was a mottled appearance; in others, the discoloration was more like a solid sheet. There was also a marked seborrhea of the scalp.

DISCUSSION

DR. LANE: The condition began ten months ago at which time reddish discoloration appeared on the arms, face and neck. Redness had never disappeared and recently has begun on both thighs. The case is presented for diagnosis.

DR. MICHAEL: I think the lesions on the thighs suggest parapsoriasis.

DR. PARKHURST: I think it may be disseminated lupus erythematosus.

DR. LANE: It was our impression that it is an early case of disseminated lupus erythematosus.

LUPUS ERYTHEMATOSUS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

The patient was first seen two years before presentation at which time there was a typical erythematosus, of the discoid type, involving the right cheek and the scalp. The patient was treated with carbon dioxide snow for four months, with considerable improvement. She disappeared from observation and returned three months ago with numerous new lesions on the right arm, face and scalp. She has been treated with gold sodium thiosulphate, receiving ten injections. Improvement has been marked and progressive, and the only reaction consisted of chilliness and fever after the second injection.

DISCUSSION

DR. LANE. This is a case of lupus erythematosus in which the patient was treated with gold sodium thiosulphate. The case was presented to show the rapid improvement under this mode of therapy.

VON RECKLINGHAUSEN'S DISEASE SHOWING ALSO HAIRY NEVI. Presented by DR. MOOK. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A white woman, aged 24, gave a history of a condition which began when she was 4 years of age. There was no history of a similar disease in her family. In addition to the usual freckle-like pigmented spots, fibromas and boggy masses,

there were a large number of what are apparently brown pigmented, fibrous, hairy nevi and a large hairy, brown, flat nevus in the pubic region and adjoining thighs.

DISCUSSION

DR. MOOK: We thought that this was a case of multiple nevi, but it greatly resembles von Recklinghausen's disease.

DR. GRINDON: I agree with the diagnosis of multiple nevi.

EPIDERMOLYSIS BULLOSA CONGENITALE. Presented by DR. TOBIAS. (From the Skin Clinic at St. Mary's Dispensary.)

A white boy, aged 9, was admitted to the clinic with the complaint of bullae which had appeared on the hands and feet about one half hour after birth and had recurred on various parts of the body ever since. These bullae formed following any injury to the skin, and have appeared on every part of the body with the exception of the scalp and the soles of the feet. The largest bullae occurred on the hands and feet. The bullae ruptured within a few days, left crusts and healed, leaving pigmented areas. Bullae appeared on the buccal mucosa at irregular intervals. At one time the patient appeared with about a half dozen bullae of various sizes on the dorsum of the tongue. Several years before presentation the lips and the lids showed lesions also.

DISCUSSION

DR. TOBIAS: I presented this as a case of epidermolysis bullosa congenitale. The child apparently had more bullae in the summer, probably because he played more. The Wassermann reaction of the blood was negative; chemical examination of the blood was negative. Bullae appeared on the buccal mucosa at irregular intervals and recently six or seven bullae appeared on the dorsum of the tongue. Two years before presentation the lips and lids showed lesions also. In reviewing the literature, I found that cases have been reported in which all mucous membranes have been involved except the vaginal and nasal mucosae.

DR. WEISS: We believe that all cases of epidermolysis bullosa should be investigated from the standpoint of the rôle of the elastic tissue. You will recall that the studies of Engman and Mook, and the later studies of Kanoky and Sutton, and my own study published still later, showed a loss or diminution in the elastic tissue of the apparently normal skin. Other observers have reported the normal elastic tissue, and the problem deserves further study. It should be emphasized that the apparently normal skin of these patients should be studied.

LINGUA NIGRA. Presented by DR. TOBIAS. (From St. Mary's Dispensary.)

A white man, aged 34, was presented at the dispensary because of an eruption on the tongue for the past four years, and psoriasis for the past thirteen years. Dystrophy of the nails occurred soon after the eruption appeared on the tongue. The patient was a chronic cigaret smoker. This case is of interest in that when the permanent set of teeth appeared there were double rows of teeth (incisors and canines). The posterior row was extracted. The eruption on the tongue consisted of a hairy patch varying from a brownish color to black and extending from the circumvallate papilla but not reaching to the tip of the tongue. There was also leukoplakia of the gums and buccal mucosa.

DISCUSSION

DR. TOBIAS: This is a case of so-called black hairy tongue. *Monilia* were found in cultures from the tongue. Section showed hypertrophied papillae.

DR. MICHELSON: Tooth pastes containing red dyes and, occasionally, ingestion of bismuth may cause a black hairy tongue to develop. Oppenheim believes the majority of such cases to be brought about artificially.

FOX-FORDYCE DISEASE. Presented by DR. WEISS. (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A white woman, aged 30, gave the history of an illness which began in August, 1926, as mild itching in the pubic region. Itching began under the arms in January, 1927, and developed on the breasts in April, 1927. The itching at times was intolerable. The eruption of small, hard, almost keratotic papules, mostly follicular and run together in the axillae to form large, lichenified patches appeared in the axillae, and around the nipples and in the pubic region.

VON RECKLINGHAUSEN'S DISEASE IN A NEGRO CHILD. Presented by DR. WEISS (From the Washington University Dispensary, Clinic of Dr. Engman and Dr. Mook.)

A colored girl, aged 7, presented a typical eruption of this type consisting of large and small pigmented spots, large boggy tumor masses and small fibrous tumors. The grandfather and one sister are said to have had the same disease.

DISCUSSION

DR. WEISS: This is von Recklinghausen's disease in the negro. Von Recklinghausen's disease is rare in the negro race, although we have seen five or six cases up to the present time.

AMEBIASIS CUTIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white man, aged 64, was presented at the clinic complaining of a condition which began one year before presentation as small "pimples" on the hands and forearms. These would slowly heal, but others continued to appear. The disease maintained the same papular character until July, 1927, at which time lesions became larger and ulcerated with a discharge of seropurulent material. The lesions increased in size by coalescence of contiguous papules and by necrosis. The eruption became painful only when ulcers appeared. The lesions were distributed over the ventral and dorsal surfaces of both forearms, wrists and hands, the external and internal surfaces of the ankles, the right ear and the forehead and right check. The initial lesion was a pea-sized tubercle, which later became pustular. Crusts then formed on the surface. The older lesions were light to deep purplish red, irregular ulcers, and carbuncle-like masses, extending above the surface of the surrounding skin. The central ulcerated portion was composed of papillae-form elevations and corresponding depressions. Scales and crusts covered portions of the ulcers and beneath them there was a yellow serous or thick purulent exudate. Some lesions did not progress to the ulcerated stage but formed crusted plaques which disappeared leaving depressed scars.

DISCUSSION

DR. ENGMAN: In relation to amebic infection of the skin, the first case reported was by Dr. Heithaus and myself six years ago. This was a child who finally had a general infection with amebia, and who lived only a short while. The case was reported in the November, 1919, issue of the *Journal of Cutaneous Diseases*. As far as we could discover, the cases reported in that article were the first reported in the literature of amebic infection in the skin. Last September in consultation with Dr. Heideman and Dr. Cole I saw a man who had been operated on in June for appendicitis. It was an uncomplicated case. At the site of the wound a boil-like lesion formed which broke down and spread until there was a large ulcer in which amebia were found in the overhanging edges as in the first case. These amebia were motile, and were unquestionably identified by various observers. This case will probably be reported by Dr. Heideman and Dr. Cole. About two months ago, we saw in a man in the Missouri Pacific Hospital another amebic infection of the skin in which amebia were easily demon-

strated not only in the smears but in sections. Therefore, since the first report was made, we have seen three additional cases of amebic infection of the skin, and it is probable that many obscure ulcers are of this origin.

TWO CASES PRESENTED FOR DIAGNOSIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

CASE 1.—A white man, aged 25, a farmer, presented a condition which began fourteen years before presentation as a "rising" on the bridge of the nose which later broke down forming an ulcer. A brother, aged 21, and a sister, aged 16, had a similar skin disease. This lesion was present about three years before other lesions appeared on the face and hip; gradually the eruption spread over the body omitting only the feet and palms. The lesions began as nodules which would break down to discharge purulent material, following which crusts would form. Some lesions healed with scar formation and others continued to increase in size until huge crusts resulted. The scars were depressed with serpiginous and circinate borders and varied from a light red to a copper hue. The ulcers varied in size from 1 to 7 cm. in diameter. The borders were slightly indurated and the surfaces were covered with thick brown crusts which were bathed in purulent exudate. All Wassermann and Kahn tests have been negative except one Wassermann test in which the cholesterin antigen was reported 4 plus. The physical examination was grossly negative except for a low malformed palate, pyorrhea alveolaris, dental caries and enlarged cervical glands. The patient has received twenty-two injections of arsphenamine over a period of seven months.

CASE 2.—A white girl, aged 16 (sister of the patient in case 1), said that at the age of 10 a red spot, the size of a dollar, appeared on the anterior surface of the left leg. One week later, this broke open, discharging purulent material and leaving an ulcer. The ulcer gradually increased in size showing no tendency to heal and presenting continuous purulent exudate until it reached the size of an orange. It remained open until the spring of 1927 when healing began, and by August, 1927, it was completely closed. Internal treatment was not given.

The present condition began four months prior to presentation. The first areas involved were the hips and shoulders and later the trunk and extremities were included. The condition grew progressively worse. There was mild pruritis at times. The eruption was distributed on the anterior and posterior surfaces of the chest, the lumbar region, the buttocks and thighs; it was less marked on the lower part of the abdomen and arms. The neck, forearms, hands, legs and feet were free from the lesions. The primary lesion was a small red dot about the size of a millet seed and bright red. Next a small accuminate papule appeared in the central portion of the dot; this latter became either pustular or vesicular. All lesions were surrounded by distinct areola. Later, dry crusts appeared and the color changed to purplish red. When the crusts dropped off, an adherent scale remained, and this was finally replaced by a deep purplish scar which varied in size from that of a split pea to that of a cherry. There was an old partially healed pigmented scar on the anterior surface of the left leg. The scar was adherent to the underlying structures and about the border were numerous sinuses.

The patient had typical erysipelas developing about this scar three weeks before presentation and was transferred to the Isolation Hospital. On return from that institution a marked bogginess of all the skin was noted for a distance of 1 inch (2.5 cm.) from the scar. This has since been replaced by thick crusts from which pus and serum exude.

The Wassermann reaction of the blood was negative.

DISCUSSION

DR. ENGMAN: These cases were presented as interesting and might possibly be a type of tuberculid. When the boy first came to us the condition looked like rupial syphilis. There have been numerous Wassermann tests of the blood all of

which were negative except one, and we feel this must have been a mistake. He was given arsphenamine and has improved greatly; he has had hospital care and good food, and his general health is much better. His sister was examined about four weeks ago. A section was submitted to Dr. Burrows and Dr. Jorstad, but they could not make a diagnosis. It is probably a type of granuloma. There was a great many plasma cells and a large number of polymorphonuclears.

DR. ORMSBY: I have seen cases similar to these: we presented one in Chicago. While the lesions at first suggested old syphiloderma, we were of the opinion it was a form of tuberculosis. I notice that the boy improved under the administration of arsphenamine. There are types of tuberculosis that improve under this treatment. I think these are cases of tuberculosis of the skin and are not syphilitic.

DR. OTTO FOERSTER: It might be tuberculosis colliquativa. It is necessary to have a primary focus somewhere in the body from which the skin becomes infected. When the resistance on the part of the patient is high, milder types of eruption occur.

DR. MICHELSON: I think that these cases are acne conglobata plus tuberculosis as described by Dressler of the Oppenheim Clinic in the German literature.

DR. HAILEY: I would like to suggest generalized blastomycosis. I recently saw a case from a family in which four were affected with blastomycosis. The girl's leg presented a typical picture of blastomycosis.

XERODERMA PIGMENTOSUM (TWO CASES). Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

CASE 1.—A white girl, aged 16, was presented complaining of a condition which began at the age of 2 as excessive prickling on exposure to the sun or wind. For the first two years this condition tended to subside during the winter, but since that time has grown progressively worse with little improvement in cold weather. At the time of presentation, the condition involved the face, neck, upper portions of the anterior and posterior walls of the chest, the upper and lower extremities, with the exception of the extreme portions of the thighs. It was characterized by dry, scaly, atrophic skin, covered with closely crowded, brown macules varying in size from that of a pinhead to that of a split pea. Some of the macules had taken on a darker hue and some were black. There were many slightly elevated lesions with rough horny surfaces. Many of these went on to form small epitheliomas, which had been treated by cauterization. Numerous telangiectases were present. The skin was markedly tanned and freckled but to a less degree on the lower abdomen and the axillary, inguinal and pubic regions. The right ala of nose had been partly destroyed by a cancer paste.

CASE 2.—A white man, aged 23, a janitor, was first seen at the Barnard Free Skin and Cancer Hospital in 1914, complaining of a skin disease which had been present since he was 3 years of age. The skin of the patient when first observed was tan and atrophic and presented multiple freckles and telangiectases. The parents were instructed to keep the patient away from sunlight as much as possible. This was disregarded, and the patient was sent out west to obtain, in words of the father "as much light and air as possible." He returned to the clinic seven years later (1921) with a marked tumor mass, the size of an apple and half as thick which involved the nose, cheeks and lower eyelids. This tumor had begun to grow three years previously, starting as a small nodule on the lower lid of the right eye. It continued to grow and later became ulcerated and bled frequently. The mass was treated by cauterization and applications of radium until it was completely destroyed. The end-result was marked scarring with great loss of tissue, chiefly of the nasal walls. Since then the patient has kept indoors most of the time and at the time of presentation showed the following picture of a person with typical xanthus whose skin was markedly tanned. Numerous telangiectases, freckles, raised hyperkeratotic nodules, atrophic areas and deep brown macules

were seen. There was an old scar on the face where the carcinoma was removed with a gaping aperture at the site of the anterior nasal wall.

DISCUSSION

DR. ORMSBY: I have seen this patient several times. It is interesting to note that he is well developed and looks as if he is fairly happy.

DR. ENGMAN: This patient was first seen here in 1914. A short time after that his family sent him west to get as they said "as much light and air as possible." He returned in 1921 much worse. The condition in the girl has progressed in a much slower manner. I have thought of producing argyria, and would like to know what effect you think it would have on this kind of pigmentation and epithelial growth.

EPIDERMOLYSIS BULLOSA. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white man, aged 26, gave a history of blisters which had been present as long as he could remember, and which appeared at any portion of the body at sites of trauma. The blisters lasted two or three weeks when they burst or dried up with formation of crusts. When the bullae ruptured, a scalding sensation was noted by the patient. Itching at times was severe. Bullae were irregularly distributed over the body, and were most profuse on the arms, hands, legs, feet and trunk. They varied in size from that of a pea to that of a half dollar. They represented different stages of development; some were of recent origin, others were shrunken, and still others had lost their epidermic covering leaving a dry red surface. There were numerous scars over the body which were surrounded by a brown halo and a white central portion. The bullae were occasionally hemorrhagic and purulent. The skin on the hands and wrists were thickened, rough and horny. There was hyperkeratosis of the palms.

DISCUSSION

DR. LANE: This is a typical case of epidermolysis bullosa, the microscopic sections of which show definite loss of elastic tissues.

ACANTHOSIS NIGRICANS. Presented by DR. MOOK.

A white man, aged 28, was presented because of hoarseness which had been present for about twenty months. Physical examination revealed an eruption, the greater part of which was seen in the axillae, flexor surfaces of the wrists, the elbows, the dorsal surfaces of the fingers, the scapular regions, the upper half of the buttocks and their folds, the popliteal spaces over the achilles tendon, and on the dorsal surfaces of the toes.

The lesions consisted of irregularly outlined, grouped, hypertrophic papules, with marked exaggeration of the normal skin folds. The papules were from 1 to 2 mm. in diameter and from 0.5 to 1 mm. in height. They were grayish in color with numerous areas of black pigment.

In the posterior thoracic and lumbar regions, the eruption had an entirely different appearance. The early lesion was red and was a thickened, slightly scaly, flat-topped, irregularly outlined patch, from 3 to 4 cm. in diameter. As the red faded, a brown pigment remained.

The pharynx, tonsils and fauces were injected. The tonsils were hypertrophic and ragged and the crypts were full of débris. The hard and soft palates were apparently normal. The tongue was geographic in appearance; on the frenulum linguae were many firm pinpoint excrescences, which formed a band from the tongue to the floor of the mouth. The vermillion of the lip was slightly thickened and scaly. The base of the tongue and the lingual tonsils showed deposits of brownish black pigment and flat verrucous papules. On the anterior faucial pillar were grouped deposits of pigment, which on touching were found to be deep-seated.

infiltrated, papular lesions. There was nodular thickening and infiltration about the right arytenoid (nonpigmented). The right vocal cord was apparently immovable and took a position a little to the right of the midline. Hoarseness was apparently due to immobility of this cord which was probably caused by mechanical obstruction from infiltration of the larynx. However, there might have been some interference with the recurrent laryngeal nerve by deposits in the thorax or some other place along its course.

The upper eyelids showed many papillary projections; varying from pink to pearly colored, and extending from the inner to the outer canthus. These were about 2 mm. long and 0.5 mm. in diameter. They were circular and surrounded the hair follicles, each one being pierced by a hair.

DISCUSSION

DR. MOOK: This case was presented four years ago. It is a typical case of acanthosis nigricans of the juvenile type. It is of twenty-three years' duration, and has been under observation since 1921. There is no change in the lesions.

LUPUS ERYTHEMATOSIS ON GOLD SODIUM THIOSULPHATE THERAPY. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A white boy, aged 12, was first seen in April, 1927, because of a definite lupus erythematosus of the discoid type involving the nose, cheeks and the portion of the scalp behind the ears. This condition has been present for ten months. The patient had been treated with twenty-four injections of gold sodium thiosulphate given at weekly intervals. Improvement was noted after the second injection, and there has been a gradual regression of the lesions. A reaction was noticed only after the eleventh injection.

A CASE FOR DIAGNOSIS. Presented by DR. MOOK. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Mook.)

A white man, aged 36, said that he first noticed warty growths on the feet in October, 1917, after wading across creeks and getting his feet thoroughly soaked. The entire plantar surface of the feet and the palmar surfaces of the hands gradually became covered with verrucous growths, the size of a pea, from 3 to 5 mm. in height, many with deeply depressed centers. The patient complained of excessive sweating of the hands and feet.

DISCUSSION

DR. MOOK: I presented this as an unusual case of verruca, in which the condition has reacted stubbornly to treatment.

DR. DENNIE: The history of medication was given, and I think it a case of arsenical keratosis.

A CASE FOR DIAGNOSIS. Presented by DR. LANE. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A colored man, aged 25, a laborer, gave a history of a condition which began thirteen years before presentation as a "pimple" on the scalp. Similar lesions appeared soon after at the edges of the scalp and remained localized for some-time. The eruption later appeared on the lower lip and spread rapidly to the face and body. At first it would disappear in winter but return during warmer weather, but at the time of presentation it remained constantly. Itching was always present at night, rarely in day time. The distribution was generalized except for the feet and hands. There was an oval band around the entire scalp at the hair margin. This band was about 1½ inches (3.77 cm.) in diameter, and was entirely devoid of hair. The skin was shiny, glazed, slightly atrophic and pigmented. In the occipital region there was a raised lichenified patch about 2 inches (5.08 cm.)

long and 1 inch (2.5 cm.) wide, the surface of which was rough and presented numerous small openings resembling pinholes. On the face, chiefly on the nose and on the lateral surfaces of the cheeks and chin were numerous accuminate papules the size of a pinhead. A few of these papules were present on the neck. The skin over the trunk and extremities was dry, rough and scaly. The primary lesion was apparently a horny plug located at the mouths of the hair follicles. In later stages these were replaced by a shiny, raised, miliary plaque, intimately associated with the follicular openings. On rubbing the hand over the surface there was a sensation similar to passing it over a nutmeg grater. This condition was more marked on the lower extremities and on the medial surfaces of the legs and ankles. There was a large, thick, accumulation of cornified material with considerable scarring. There was no hair in the axillae or on the pubis. The hands and the feet showed no lesions except a few dilated follicles on the dorsum of the proximal phalanges.

Psoriasis in a Colored Man. Presented by Dr. Lane. (From the Barnard Free Skin and Cancer Hospital, service of Dr. Engman and Dr. Mook.)

A colored man, aged 43, a janitor, gave a history of a condition of five years' duration which began as small raised "bumps" on the hands. For the past five years he had been removing paint from automobiles and using a paint remover and an alkali which irritated and burned the skin. Other raised spots later appeared on the backs of the hands and forearms. During the past year the scalp had become involved. Papules were the predominating lesions but there were also numerous crusts and cracks in the skin. The eruption was distributed over the scalp, posterior and inner surfaces of the ears, on the alae of the nose, on the cheeks, the anterior to the ears, and on the distal portions of the arms, forearms, wrists and hands. The primary lesion was a small, follicular papule, the size of a pinhead, capped with a thick scale. Papules enlarged to reach the size of a split pea and came to the size of a bean. There were also crusts on the anterior and posterior surfaces of the wrists, that varied in size from that of a dime to that of a lemon. The crusts were thick, hard, and adherent. Some had raised borders resembling a vaccination shield. These crusts were traversed by many fissures. The skin of the palm was dry, thick, scaly and fissured. The eruption on the scalp consisted of papules varying in size from that of a pea to that of a button and tubercles which were covered with thick sulphur-colored scales and crusts. The process on the ears, cheeks and nose consisted of scaly squamous patches. The eruption cleared up entirely at times only to reappear after a short interval. Occasionally there was mild pruritis but no subjective symptoms were present.

MANHATTAN DERMATOLOGICAL SOCIETY

D. L. Satenstein, M.D., *Secretary*

Regular Meeting, Feb. 14, 1928

Ludwig Oulmann, M.D., *Presiding*

Acrodermatitis Chronic Atrophicans. Presented by Dr. Scheer.

A woman, married, aged 52, born in the United States, presented a lesion on the left hand and forearm. The condition began over the knuckles of the left hand twelve years before presentation and gradually spread upward to just above the elbow. At the time of the patient's first visit, there was a dermatitis (the skin was bright red, scaly and itchy), which cleared up within a few days with applications of wet dressings and boric acid ointment. The affected areas, i. e., the dorsum of the hand and both surfaces of the forearms, were violaceous red and showed anetodermia (atrophy and wrinkling). On the flexor of the forearm

was an island of normal skin. Part of the upper margin of the lesion appeared as a sharply defined, somewhat serpiginous, elevated, firm red border about ⅛ of an inch wide (3.17 mm.), suggesting strongly a tertiary serpiginous syphiloderm. A biopsy from this border, as reported by Dr. Satenstein, showed a typical picture of acrodermatitis.

DISCUSSION

DR. FOX: I am glad to be able to present a photograph and history of a case that was almost the exact counterpart of the one shown tonight. My patient (*J. Cutan. Dis.* **31**:345 [May] 1913) was a man of 40, who had suffered from a diffuse atrophy of the back of the left hand and wrist for ten years. The eruption was strictly unilateral.

DR. SCHEER: One peculiar feature about this case is that for a period of twelve years the atrophy was rather slight and the veins did not show through the skin. Another peculiar feature was that on the upper border of the lesions and on the flexor surface there was a somewhat serpiginous, raised border suggesting syphilis. There has been no report, as yet, on the Wassermann reaction. A biopsy was taken from this raised, elevated, indurated border, however, and Dr. Satenstein reported typical observations of acrodermatitis chronica atrophicans, with a complete disappearance of the elastica.

ADENOMA SEBACEUM. Presented by DR. OCHS.

A man, aged *22*, married, presented many small, closely aggregated, circumscribed, lesions varying somewhat in size from that of a pinpoint to that of a pinhead, and located about the nose and about the mouth and on the upper lip. There were a few isolated lesions on the cheeks and chin. Most of the lesions were the color of the normal skin, but a few — especially those on the chin — were reddish. Up to the age of 13, the patient was free from any dermatoses. The case was presented on account of the lateness of the appearance of the lesions, namely, in puberty instead of in infancy; because the condition occurred in a man of apparently normal mentality. The history showed that the grandfather of the patient had had a similar condition.

DISCUSSION

DR. SCHEER: We rarely see mental changes in these cases; yet at the Mount Sinai Hospital, the neurological service showed us a patient who had marked mental changes. At that time the neurologist told me that at autopsy these patients do show some fibrotic changes in the brain, which they call tuberosclerosis. Except for this case, I have not encountered mental deterioration in adenoma sebaceum.

DR. BECHET: I agree with Dr. Scheer about the infrequency of a low mental state in this condition. I have noted at least fifteen or twenty cases in the last few years, and in only a few were there evidences of a low grade of mentality. One of the most severe cases that I have ever seen occurred in a girl of superior intelligence. While adenoma sebaceum occasionally does occur in the mentally deficient, this association is not invariable.

DR. LEVIN: It is true that the patient shows lesions of adenoma sebaceum, but a cursory examination also reveals fibromas of the ear and neck, and I believe that if he were to receive a general cutaneous examination, he would reveal evidences of similar lesions over the rest of the body. I think the patient has von Recklinghausen's disease, in which adenoma sebaceum is part of the whole picture. A patient of this type should, in my opinion, be examined by a neurologist and an ophthalmologist, and attention should be concentrated on the retina to rule out the possibility of tuberosclerosis.

DR. GILMOUR: At Randall's Island, where there are from 1,800 to 2,000 patients, I saw a number of cases of adenoma sebaceum. All these cases occurred in children who were mentally deficient.

DR. HOWARD FOX: In order to obtain some information regarding the incidence of adenoma sebaceum in insane and feebleminded persons, I examined a large number of patients on one occasion at Kings Park Hospital. At that time, I was able to find only a single case, which, however, was a well developed one. I was told by the staff, who were familiar with the disease, that it was not particularly common in their institution. One of my father's patients who was under observation for years, was of decidedly low mentality.

DR. GILMOUR: At the Manhattan State Hospital there are from 5,000 to 7,000 patients. I have never seen one case of adenoma sebaceum in the insane, and I have seen a good many insane patients.

DR. OCHS: Is it not unusual to have the disease start late in puberty, at the age of 14? Here is a case of an intelligent man who has been recently married, and who naturally wants to have the condition cured. What, in the opinion of the members, would be the best treatment for him?

DR. SCHEER: I think there are a number of possible efficaceous methods of treatment for this patient. Dr. Wise cured a case with ultraviolet radiation. The use of carbon dioxide snow could be tried.

DR. ANDREWS: It seems strange that this disease should so often be associated with mental defects, particularly as adenoma sebaceum is a disease of the oil glands and the oil glands do not develop until the third intra-uterine month; and the nervous system is plit off from the ectoderm long before that, at the end of the first four weeks. The onset of the condition so late in life is especially interesting in this case. In my hands, treatment of this disease by endothermy and desiccation resulted in the recurrence of a great many of the lesions and radium did not affect them at all, that is, they were not radiosensitive to small doses. I obtained the best results with strong doses of ultraviolet radiation.

DR. LEVIN: I think that, generally, dermatologists pay too little attention to the association that exists between the skin and the nervous system. The close relationship is due to the fact that both the nervous system and the skin are derived from the same embryonal layer—the ectoderm. Patients of this type should receive thorough neurologic examinations.

DR. OCHS: In conjunction with the remarks made by Dr. Scheer, I wish to say that when this patient originally came to me he had a number of small lesions around the chin and angle of the mouth. I applied a 20 per cent solution of salicylic acid in alcohol, and was surprised to see a number of the smaller lesions disappear. Whether they will recur, I do not know; the larger lesions, however, did not yield to that form of treatment.

DR. SCHEER: As far as treatment in these cases is concerned, I think different methods must be tried on different lesions, and the results compared.

DR. SATENSTEIN: In the microscopic observations of an excised nodule, some hyperplasia of the deep connective tissue and some proliferation of the elements of the sebaceous gland in the wall of the follicle were seen.

LYMPHANGIOMA CIRCUMSCRIPTUM. Presented by DR. BECHET.

B. R., a girl, aged 16, had had a lesion on the tongue since birth. It was situated on the dorsum, a little to the right of the median line, and measured about 1 inch in length (2.54 cm.) by ½ inch (12.70 mm.) in breadth. It consisted of yellowish to red, deep-seated, grouped, thick-walled vesicles, with much surrounding thickening. The subjective discomfort was negligible.

DISCUSSION

DR. HOWARD FOX: The presence of what appears to be tiny lymphangiectases would give the clue to the proper diagnosis in this case and differentiate the lesion from a fibrous nevus. As to treatment, I think that any one of several destructive methods would answer, endothermy being preferred.

DR. SCHEER: Two methods can be used — endothermy or destruction by the electrocautery.

DR. WALLHAUSER: I have had an experience with two cases of lymphangioma of the tongue. One lymphangioma, in which about one third of the tongue was involved, was completely excised and the edges brought together with sutures. The result in this case was good. The other patient received treatment over a long period of time with radium, with only moderate improvement. I was in favor of removal either by excision or by actual cautery.

DR. ROSEN: With regard to the frequency of lymphangioma circumscriptum in the mouth, I have seen three cases during the past year. The surgeons made a diagnosis of sarcoma in one instance, because of a hematoma in the lesion. In this instance, the entire mass was excised, and microscopic examination corroborated the diagnosis of lymphangioma with hemorrhage.

DR. BECHET: I should have stated in the history that a biopsy had been performed at another hospital, and the nurse, who accompanied the patient, stated that the histologic diagnosis was lymphangioma circumscriptum. Leaving this report aside, the lobulated, tumor-like lesions, topped by yellow to mulberry red vesicles, are sufficiently characteristic for the clinical diagnosis.

DR. FOX: Dr. Trimble, I believe, obtained a good result with radium in a case of lymphangioma of the skin.

DERMATITIS MEDICAMENTOSA (?). Presented by DR. BECHET.

The patient, L. L., a white man, aged 25, said that for a number of years he had had ten recurrent attacks of a dermatosis exactly similar to the one for which he had applied for relief. The present attack had begun four days previous to presentation, and consisted of large violaceous blue, sharply outlined, rounded, nonscaly, flat lesions scattered over the body; they were particularly numerous on the extensor surfaces of the hands and forearms. In appearance they were typical of an eruption produced by phenolphthalein. The patient was intelligent and denied absolutely that he had ever taken any type of laxative; in fact, he was positive that he had not taken any drug at any time, either before or for the relief of his eruption. His general health was good, and he had not suffered from constipation.

DISCUSSION

DR. LEVIN: It is true that the patient presents an eruption which is suggestive of that observed in eruptions produced by phenolphthalein, but I think that, in such cases one arrives too quickly at a diagnosis of an eruption caused by phenolphthalein. At present I would favor a diagnosis of erythema multiforme-like eruption of unknown origin. I do not feel that we have a right to call this an eruption produced by phenolphthalein unless it is proved by a therapeutic test.

DR. WALLHAUSER: On account of the long duration of the lesions occurring in plaques and circinate lesions with moderate scaling, the diagnosis of parapsoriasis under the type described by Brocq should be considered.

DR. ANDREWS: The color of the lesions does not strike one as being that of parapsoriasis. I think the man's history is rather important. The lesions are of five years' duration, and for ten years he has been handling fruit as an occupation. It is possible that some arsenic preparation may be used to disinfect the fruit and he may have absorbed enough metals to cause this persistent erythematous eruption. I do not think it is of any value to have Dr. Levin say that this is not an eruption produced by phenolphthalein, but that it is erythema multiforme. Erythema multiforme does not mean much unless there is a reason for making such a diagnosis. The man does not seem to be susceptible to anything that might have caused the eruption.

DR OCHS: This is the counterpart of a case I presented in October; it was a long time before the patient admitted that he was taking phenolphthalein. The lesions were all over the body; the one on the shoulder and that on the back

were the exact counterparts of this one, and had some peculiar mottling and stippling in the center. At times it is hard to get the patient to admit that he is taking any phenolphthalein, as he thinks only of drugs and does not consider physics in the light of drugs. The patient presented admitted that he took agar. He may have only taken the drug once, but this may suffice to bring out this eruption. I agree with the diagnosis of an eruption produced by phenolphthalein.

DR. FOX: If the patient had been shown as presenting a case of phenolphthalein eruption, with a cleancut history of ingestion of this drug, I do not think any one would have thought of questioning the diagnosis. It is certainly a picture of this condition. However, I think Dr. Levin is right in saying that we should not insist on this diagnosis in every case that merely presents this type of eruption. Other toxic causes may produce the same appearance. I do not think, as has been suggested, that metallic arsenic is the cause. This, in my opinion, produces diffuse areas showing the appearance of one of these plaques in which there is a mottled or stippled condition recalling a similar case shown recently by Dr. Ochs.

DR. SATENSTEIN: I have never seen a case of erythema multiforme that left pigmentation of this kind. I would like to see some of the many cases that Dr. Levin referred to; he should present some of them before this society.

DR. SCHEER: I agree with the statement of Dr. Satenstein and also with the opinion expressed by Dr. Fox. Of course, there are other drugs that will give this type of eruption. I have a patient, an elderly tabetic person, who gets (after one small dose of neoarsphenamine) an eruption just like this. It is strange how difficult it often is to get a history of ingestion of drugs containing phenolphthalein. I agree that this is an eruption caused by phenolphthalein.

In the cases we had at Mount Sinai Hospital, we ordered phenolphthalein from the drug department, and administered it in 2 grain (0.130 Gm.) dosages two to three times a day, and expected to see a flare-up of the eruption when the patient came back. No effect was noted whatsoever. We then asked the patient to take some Ex-Lax and then come in to see us; there was a distinct flare-up. There are two kinds of phenolphthalein — the white and the yellow. It is the yellow that produces this reaction.

DR. OULMANN: The name erythema perstans existed long before anything was known about an eruption caused by phenolphthalein. I cannot agree to a diagnosis of erythema multiforme. If the lesions are not due to phenolphthalein, Dr. Bechet should look for the etiologic factor.

DR. BECHET: Dr. Fox, in his discussion, states my reason for presenting the case. In appearance it is a typical phenolphthalein eruption, yet the patient is definitely positive that he did not ingest any patented or regular form of the drug. I named every variety or form of the drug, but he continued to deny taking any of them. Dr. Wallhauser's suggestition of parapsoriasis is interesting, yet the lesions have disappeared and recurred about ten times in a number of years. Parapsoriasis is much more permanent; the color and morphology of the lesions are also very much against such a diagnosis. I still believe the eruption is due to phenolphthalein, despite the repeated negations of the patient. As some one stated, there is a peculiar psychologic twist of the mind in some patients that makes it repulsive for them to admit the taking of any definite self medication, and in the case under discussion the patient may be influenced by such an idea; hence his general denial.

ERUPTION PRODUCED BY PHENOLPHTHALEIN IN A NEGRO. Presented by DR. ANDREWS.

A man presented a condition on the back accompanied by itching that had occurred two months prior to presentation. He recalled that, for the first time in his life, he had taken Bolls rolls before the onset of the eruption. He had also taken feenamint and the itching had become extreme. He presented slate-blue, rounded patches on the arms and legs.

DISCUSSION

DR. OCHS: I agree with the diagnosis.

DR. ANDREWS: The pharmacopea states there is one phenolphthalein that is a white or yellowish-white powder. I asked three or four different druggists about it and they all said there was only one kind. I recently had a patient with a phenolphthalein eruption, which was not typical, but which presented most of the features. It was composed of persistent slate-blue patches of erythema, and lasted from two to three weeks. The patient had been taking taurocol tablets, which contained phenolphthalein. I wrote the manufacturers of these tablets, and they wrote me a letter in which they stated that in taurocol tablets they did not use the yellow phenolphthalein, which they understood was not purified, and that they used only the white, which was purified. They felt that the eruption was due to some idiosyncrasy on the part of the patient. The eruption disappeared when the patient stopped using the taurocol tablets.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, Feb. 25, 1928, held at Ann Arbor, Mich., through the courtesy of Dr. Udo J. Wile

FRANCIS E. SENEAR, M.D., *President, presiding*

ACNITIS. Presented by DR. WILE.

A housewife, aged 32, had a condition which had been present for two years. It had been much more pronounced for the past year, involuting and recurring spontaneously. The patient had used many different kinds of ointment, and had also been treated with alpine light, without permanent benefit.

The patient presented an eruption confined to the face and forehead, which was made up of discrete, brightly inflammatory papules, which averaged in size that of a pinhead, and which gave a characteristic yellowish-brown color with diascopy.

A biopsy was shown.

DISCUSSION

DR. STILLIANS: I was impressed by the grouping of the lesions and their butterfly-like distribution over the face.

DR. MICHELSON: Because of the history of the lesions appearing in crops and because of their small size, grouping and transluscent coloring, I think the case is one of disseminated lupus vulgaris.

DR. ORMSBY: The lesions in acnitis as a rule are situated a little more nearly on the center of the face. They appear in crops, and I think the history of a more or less continuous process in this case is more favorable to tuberculosis of a definite type than to acnitis. There are apple-jelly brown nodules and other characteristics which place it definitely in the tuberculosis class. The disseminated miliary lupus which occurs on the face presents many features in common with this case.

DR. H. R. FOERSTER: My impression was that of Dr. Michelson. We have under observation at present a patient who is an exact counterpart of this one, who, about a year ago had a typical miliary lupus. The lesions were discrete; they were not inflammatory or pustular, and showed on biopsy the structure of tuberculosis. At present she presents the appearance of this patient, and I would prefer to call it miliary lupus.

DR. WILE: We are glad to accept the diagnosis of tuberculosis. I think the name acnitis was given to it because we were sure of its tubercular character. I

think the case could easily escape attention as tuberculosis on account of its similarity to rosacea. It takes more than the glass pressure to convince one that it is tuberculosis. I agree that it is far better to present the case as miliary lupus.

MILIARY LUPUS. Presented by DR. WILE.

A housewife, aged 32, three and one-half years before presentation, noted the appearance of discrete, dully inflammatory papules on the face. They were chronic, did not ulcerate and had no subjective symptoms. Local treatment as well as arsenic by mouth did not influence their course. There was no family history of tuberculosis.

Physical examination showed an eruption confined to the face, especially grouped about the eyelids and on the upper lip. The lesions were the size of a glass pinhead and presented deeply seated, brownish-red papules, some of which became crusted. At the time of presentation, most of them were replaced by atrophic scars as a result of treatment with the cautery. Roentgenograms of the chest were consistently normal. Old calcified lymph glands were found in the neck.

A biopsy was shown.

DISCUSSION

DR. PUSEY: The only thing I can say about this case is that we should congratulate Dr. Wile on his remarkable results from cauterization of the lesion. I have had some good results from cauterizing lesions of lupus, but I never saw such results as he obtained in this case with so many lesions.

DR. CREGOR: I would be interested to know what cautery Dr. Wile applied.

DR. WILE: The electrocautery was employed. The case was interesting possibly as a therapeutic problem but also, I think, because of the active microscopic tuberculosis which the patient had. Every lesion was a solid mass of noncaseated tubercles. Following the cauterization, the patient now shows other evidences of tuberculosis. Taken with the case just discussed they are of more or less similar character, and yet it would be impossible, I think, to treat the patient in the first case in just this way. This patient had 154 lesions cauterized, and I think the other probably has 1,000, or more, and it will thus be a different problem from the standpoint of therapy.

CASE FOR DIAGNOSIS. Presented by DR. WILE.

A housewife, aged 40, gave a family, past and marital history which was unimportant except for history of mastitis eight years previous to presentation. Four or five months prior to examination, the patient noticed some itching and a deep-seated, sticking sensation in the left breast. She consulted a physician who gave her an ointment to apply locally. Since that time she had noticed the appearance of the lesion now present, together with a marked increase in the symptoms. There had been no other therapy.

The patient presented over the left breast, a large palm-sized, slightly elevated, bright bluish-red plaque, which was sharply demarcated, entirely sparing the areola. There was a slight telangiectasia, a suggestion of scar formation and questionable early atrophy present. The lesion had remained unchanged since first seen.

A microscopic section was shown.

DISCUSSION

DR. MICHELSON: I saw a keloid similar to the lesion presented which was treated by excision and Thiersch grafting. The result was splendid.

DR. PUSEY: I thought it was a keloid and I think that any one would be foolish who did not think so. Clinically it is. It is an absolutely analogous thing. It is

a neurofibroma, according to the microscopic observations, but it is keloid of that tissue, nevertheless.

DR. DRIVER: I agree with the diagnosis of keloid, but I wonder whether any one else had the idea I had when I looked at it—that it was self-inflicted. The appearance of the lesion with its rectangular outline looked to me like a dermatitis factitia, on which a keloid had developed.

DR. ORMSBY: I have seen an ordinary keloid on the breast with an angular outline similar to that exhibited today. Our patient also had a number of large keloids in other areas.

DR. PUSEY: May it not be possible when we examine a number of keloids that we will find more nerve elements than we have found during the past? This patient has had no more discomfort than many keloids give, for many of them are painful. When we asked the patient if it hurt, she said, "Yes, quite a lot," but she did not complain until we emphasized it.

DR. SENEAR: About two weeks ago Dr. Weber had a case in our clinic which was almost a duplicate of this. The patient was a negress, and her color masked the pigment. At first we thought it was scleroderma, but on examination found it was a keloid, and we found that this was Dr. Weber's original diagnosis.

DR. WILE: I wish to say that we bit on this as hard as any one or harder, for we suggested also another diagnosis. There was no question in my mind that it was a keloid when the patient was first seen, but we later considered the diagnosis of cancer en cuirasse. We quarrel a great deal with our pathologist on syphilis and some things, but not on simple things, and when he sent back a diagnosis of neuroma we could not disagree with him on that. The only explanation we had was that we had cut through a big nerve; so we took three more pieces and still he would not see anything but plexiform neuroma or elephantiasis neuromatosa. When one looks at the section, there is nothing that resembles a keloid. It is made up largely of nerve fibers and connective tissue not like that seen in keloids. I think we are dealing with a case that is an enigma, a neuromatous tumor. It does not look anything like neurofibroma of the structure of Recklinghausen's. I do not think it is an artefact. The woman does not impress us as that type of patient, and the pathologic processes of the tumor would rule that out. We expect to report the case in full, for we find nothing in the literature that matches it. We are afraid to cut it out for fear it may extend. I would be grateful for any therapeutic suggestions. The lesion is of only four months' duration; it spread rapidly and is probably still spreading.

DR. MICHELSON: Did the pathologist venture to make a prognosis from his examination?

DR. H. R. FOERSTER: If there evidence of hyperplasia in the biopsy wound?

DR. WILE: The pathologist could say nothing regarding the possible extent of the tumor, but thought the prognosis good as to life. There was no evidence of hypertrophic scar in the biopsy wound. I should be glad to send a specimen unstained to any of you who wish to stain it for yourselves.

CASE FOR DIAGNOSIS. Presented by DR. WILE.

G. B. C., a woman, a physician, aged 26, single, began several months previous to presentation to notice rather deep-seated, slightly pruritic papules on the lateral surfaces of the fingers of both hands. Some tended to involute spontaneously without scar formations; others were more persistent. Her general health had been slightly below par during this period.

Physical examination showed numerous split-pea sized, discrete, deeply seated papules on the lateral surfaces of the fingers of both hands. They were firm, brownish-yellow, and the centers of some were necrotic. There was some pain on pressure. Some calcified cervical lymph glands were present, and roentgenogram of the lung showed increased shadows of the hilum.

DISCUSSION

DR. CREGOR: The first thought I had was that the case belonged to the erythema multiforme group. I thought of two things, chilblain and erythema multiforme.

DR. PUSEY: I think this is one of the most interesting cases presented this morning. The woman had a small tumor on the middle phalanx of one finger which was elevated and firm and annular, and some of the others showed tendency to annular shape. I thought it was Crocker's erythema elevatum diutinum, the same as granuloma annulare, and I thought the section confirmed this diagnosis.

DR. O'LEARY: I believe the patient has folliclis. She has an acrocyanosis of moderate degree which is so frequently seen in patients with this disease. Also behind the left ear there is a definite papulonecrotic tuberculid.

DR. SENEAR: I had the same feeling that Dr. Pusey did when I looked at the patient, and yet I felt that the decided tendency to necrosis in the lesions would fit in with the diagnosis of papulonecrotic tuberculid rather than granuloma annulare.

DR. WILE: We presented the case for diagnosis, and after the suggestion of Dr. Pusey and after looking the slide over again, I am impressed with the diagnosis he offered. Although the young lady has been well, I understand that there is a shadow over the hilum, and while not corroborative, it is of suggestive value. The therapy is what she is particularly interested in.

DR. MCBRIDE: If we saw this type of lesion on the lower extremities, we might say it was an erythema induratum, Bazin, as it appears to me.

CASE FOR DIAGNOSIS. Presented by DR. WILE.

A housewife, aged 66, had a disorder which began with burning and itching in the region of the eyes two years prior to presentation. This was treated with boric acid. Shortly afterward, she noted burning and itching on the face and neck, and this had gradually spread to involve the entire body. Burning and itching were severe at the present time, and recently she had noted the skin becoming bluish. She had used many ointments and lotions without gaining permanent relief. There was no history of radium or roentgenotherapy, and she had lost about 40 or 50 pounds (18.1 or 22.7 Kg.) since the onset of her illness. About one year ago she had received about thirty intravenous injections of an arsenic preparation, thought to be sodium cacodylate.

She presented a universal eruption which showed some predilection for the extensor surfaces and trunk, sparing the region of the nipple and umbilicus. This consisted of an underlying purplish-red erythema, and an exfoliation of a fine branny type. The entire skin was thin and atrophic, and the superficial vessels were accentuated. In the right buttock were about a dozen deeply seated nodules which were firm and not tender. The buccal mucous membrane showed several discrete patches of leukokeratosis. There was no marked lymphadenitis, and the abdomen did not present any palpable masses. The lower legs showed some varices.

The blood Wassermann reaction was plus; there was a slight secondary anemia; otherwise the blood was normal.

A section was shown.

DISCUSSION

DR. MCBRIDE: It had the appearance to me of pityriasis rubra of Hebra.

DR. H. R. FOERSTER: I would hesitate to make a diagnosis, but the outstanding features were the atrophy, the moderate but extensive scaling, the telangiectasia and the erythema. I think one would have to consider the diagnosis Dr. McBride has offered and also poikiloderma and lupus erythematosis of the telangiectatic type. I would like to hear Dr. Ormsby's opinion of this case, having in mind a patient he presented at the last meeting of the Society.

DR. ORMSBY: I was much in doubt about this case, but agree with all that Dr. Foerster has said. The patient that we showed a month ago had many of the characteristics that this one presents. Neither of these patients presents the classic radiodermatitis appearance; that is, patches of hyperpigmentation, telangiectasia and atrophy, but they both somewhat resemble poikiloderma. I think the disorder in this patient is strongly suggestive of poikiloderma, but the case cannot be placed positively in that category.

DR. PUSEY: I could not make out the dermatitis we have in Hebra's disease. The picture seemed to me to be a sclerotic skin with the subsequent slight atrophy and a marked degree of telangiectasia, the sort of picture, except for the greasiness of the skin, that we see in the skin of farmers and sailors. I think it does not come into any of the cases we have seen in the past and that it falls in the group John Lane brought to our attention, poikiloderma. It is not typical, but when we consider that there are horses which vary in size all the way from a jack rabbit to a Norman stallion, we may consider that we have not yet seen all of the horses represented in this disorder. It was interested in having Dr. Wile say that Dr. O'Leary said the picture was like a sunlight treated skin, and I want to put it down as the O'Leary-Wile type of poikiloderma.

DR. EBERT: I was struck by the presence of the tumors on the buttock in the case presented by Dr. Ormsby at the last meeting, and there were also indurated tumors on the thighs.

DR. WILE: We are grateful for the help in diagnosis, for this was the only category in which we could place this case — in the disputed group of poikilodermas. We had a subcutaneous tumor removed, and I think they are part of the generalized arteriosclerosis that the woman has, for they are reported as calcified fat plaques. We thought there might be some connection between the tumors and the other picture, but evidently they are part of the general arteriosclerosis.

ARTHRITIS DEFORMANS: XANTHOMA TUBEROSUM MULTIPLEX, UNDERGOING CALCAREOUS CHANGES. Presented by DR. WILE.

N. DeH., a woman, aged 19, no occupation, single, had a disorder which began six years previous to presentation as a progressive, chronic arthritis of the deformans type, starting first in the right elbow. The eruption first appeared one and a half years ago as discrete yellowish nodules over the elbows, shoulders, buttocks, right knee and dorsal surfaces of the fingers. They had shown no tendency to involution or ulceration.

Physical examination showed a slender woman who presented a polyarticular arthritis of the deforming type. Scattered sparsely over the aforementioned areas were elevated nodules, varying in size from that of a pea to that of a small cherry, which were painless and had a peculiar chamois yellow color. Many were surrounded by an inflammatory halo. Some were soft to palpation; others seemed to be undergoing calcareous changes. Urinalysis and blood count were normal. The patient showed a normal metabolism of sugar by the dextrose tolerance test.

DISCUSSION

DR. OLIVER: I agree with the diagnosis. At a distance the case suggested to me keratoderma blenorrhagica. As I examined the lesions more closely, I saw it was an unusual case of xanthoma tuberosum.

DR. WILE: We showed this patient largely because of the calcareous change going on in the lesions of xanthoma tuberosum. When we first saw her, she had no calcareous deposits; the lesions were pure xanthoma. The patient is one of a group of three being studied now. She has no hypercholesteremia; yet by careful investigation of the chemistry of the tumor it is identical with a tumor in the case of a man who had 2,700 mg. of fat per hundred cubic centimeters in his blood. I think the calcification of the tumor is part of the arthritic condition; she had a deposit of lime salts, and I think this goes into the tumor as well.

PITYRIASIS LICHENOIDES CHRONICA. Presented by DR. WILE.

L. R., a woman, aged 22, a nurse, single, gave a past and family history which was unimportant.

An eruption appeared suddenly four months prior to presentation. The first lesions appeared over the upper part of the chest and forearms, and spread rapidly to involve the entire trunk and extremities. Although many different kinds of therapy had been attempted, the condition had not responded. The patient's general health had not been impaired, but the eruption was troublesome on account of pruritus and scaling.

The patient presented more or less generalized eruption which was more marked over the trunk, upper part of the chest, forearms, thighs and feet. The eruption was primarily papulosquamous, for the most part discrete, and the individual lesions averaged in size that of a small pea. Some of the papules were covered with a heaped-up silvery scale which was accentuated by scratching.

CASE FOR DIAGNOSIS. Presented by DR. WILE.

A housewife, aged 60, had an eruption of five years' duration which began on the back. Since that time it had become practically generalized and had always been rather highly pruritic. She had used various medicines both internally and externally, and had received some active therapy, but the exact amount was not known.

At the time of examination, the patient presented a generalized eruption which showed some predilection for the trunk and which apparently had been bullous in character. There was slight tendency toward grouping and marked hyperpigmentation. Most of the lesions were covered by a dried crust, removal of which left a raw, bleeding surface. Some of the lesions had become slightly verrucous in character. Nikolski's sign was not demonstrated, and no lesions were seen on the mucous membrane.

The blood showed a slight secondary anemia, the white count being practically normal with the exception of occasional eosinophilia.

DISCUSSION

DR. OLIVER: I think this case was much like those that have been described by Dr. Senear and Dr. Ormsby as pemphigus combining the features of lupus erythematosus.

DR. O'LEARY: To me this is a striking case, but I am unable to make a diagnosis.

DR. DRIVER: Dr. Cole and I saw this patient at about the time the condition started. We had her hospitalized on two or three occasions, and at that time thought she had a typical and characteristic Duhring's disease. The grouped lesions, the pigmentation and other symptoms bore this out, and on several occasions she responded quickly to arsenic. I had not seen her for over a year until I saw her this morning. The lesions are not bullous now and the keratotic character is different from what it was when we saw her, but at that time we did not consider anything but a Duhring's disease.

DR. SENEAR: I agree with Dr. Oliver that the vegetating lesions were seen in other cases of this type. The thing that struck me particularly was the rapid appearance of the lesions on the face and the equally rapid disappearance. The patient told me that the lesion on the cheek today was not there yesterday. In the two cases of this type that I have observed for a long time the patients have both shown this tendency in the same striking fashion. In the first case described by me the patient did not resemble the general picture seen in the other case of my own and Dr. Ormsby, but the latter presented a combination of two pictures. On the face there are lesions which at times resemble lupus erythematosus and at times seborrheic dermatitis. The lesions change type rapidly from that of lupus erythematosus to greasy, crusted and seborrheic dermatitis. In addition, these

patients have lesions on the body that are not the tense bulla of the usual pemphigus type but flaccid bulla which rupture easily and which leave a moist erosive base, and these, instead of healing, take on a keratotic character. Sometimes there is a greasy scale and again a dry scale. These lesions also persist indefinitely. The outstanding character of all these cases, together with some seen in New York that developed a frank pemphigus, is similar.

DR. PUSEY: I asked Dr. Senear to give this description because I thought it was an exceedingly interesting differentiation he made, but this case did not clinically fall in his group, to my mind. I put down a chronic Duhring-like eruption as my memo of this case, but I cannot make a Duhring's disease out of it. The lesions were the size of a coin, with marked pigmentation. I did not see any of the punctate lesions that have been mentioned. The vesicular and bullous features of the lesions seem to me to be trivial in comparison with the other part. They may have been vesicular and bullous in the past but are abrasions now rather than a dominant feature of the condition. I do not know what the condition is, but I cannot get my mind away from the possibility of its being a mycosis fungoides. I asked Dr. Wile about the histologic picture and got the impression that he felt that there was a possibility of this in the section.

DR. WILE: This patient has been in the hospital for a long time off and on, and has been the subject of a good deal of study and discussion on the part of members of my staff. We do not know what she has. We have never seriously entertained the diagnosis of Duhring's disease while she has been here, although her previous history suggests that she may formerly have had lesions that might lead to that diagnosis. It is a far cry from pemphigus to granuloma fungoides, and yet we have had this in mind. She occasionally has lesions resembling those of mycosis fungoides on her face. I have the feeling Dr. Pusey has, that she will ultimately develop tumors of the fungoid, infiltrated type. At no time have we felt justified in making that diagnosis from our microscopic study, except that she has infiltration of lymphocytes, but no more characteristic of that than any other disease. From the standpoint of therapy, she is a hopeless task. She improves for a time on hospitalization and then goes home and has the whole thing over again. She has had roentgen-ray tests. When she was here the time before the last, the keratotic lesions became so large that they stuck out half an inch from the surface. Under roentgenotherapy they did involute, but they came up again. They did not look exactly like the lesions of mycosis fungoides.

CUTANEOUS LYMPHOBLASTOMA; LEUKEMIA; LEUKEMIA CUTIS. Presented by DR. WILE.

H. L., a man, aged 74, American, builder, was first seen in May, 1924. In 1914, he first noted gastro-intestinal symptoms, which recurred intermittently until 1923, when they were relieved by appendectomy and cholecystectomy. There was nothing else of importance in the past history.

His present illness began during the summer of 1922, with redness and itching over the back, soon spreading to the anterior surface of the thorax, and becoming universal in about a year. The itching was severe and did not respond to treatment. At the original examination, he was a well preserved man who presented a universal hyperpigmentation of a peculiar reddish-brown discoloration, unassociated with desquamation. This pigmentation was in part due to a mottled erythema which suggested an extensive fine telangiectasia. The skin was only slightly thickened, and there were no localized areas of depigmentation or infiltration. There was a striking enlargement of all superficial lymph glands.

The patient had been under observation since that time during which period the brownish discoloration had given way to a dull erythema and over the back had appeared a half dozen palm-sized areas of depigmentation with some infiltration. The pruritus continued intolerable. His general health and weight had remained about the same.

The first blood count was essentially normal, and at the present time he showed 50,600 white blood cells; neutrophils, 20; eosinophils, 8; basophils, 1; transitionals, 1; large lymphocytes, 38; small lymphocytes, 32.

DISCUSSION

DR. ORMSBY: It might be of interest to review the observations in this case when presented before this society in October, 1925 (ARCH. DERMAT. & SYPH. **13**:551 [April] 1926). At that time the duration of the disorder was stated to have been five years. The entire cutaneous surface was involved and was mahogany brown. The skin was thin and covered with fine scales. The nails were dystrophic, and there was subungual hyperkeratosis. There was moderate lymphadenitis. A differential white cell count showed 12 per cent eosinophils; otherwise the observations on the blood were normal. It was considered an example of pityriasis rubra (Hebra). At the same time a clinical counterpart was shown in a patient, aged 60 years, whose disorder was of nine years' duration with a leukemic blood picture. There were 33,000 leukocytes. The differential count showed small lymphocytes 75 per cent, polymorphonuclears 18 per cent, large lymphocytes 1 per cent, eosinophils 6 per cent. This patient was presented as an example of leukemic erythrodermia. While these two patients presented a similar clinical picture, they were classed differently on account of the observations on the blood.

DR. KEIM: We have had this patient under observation for more than three years. At the time we first saw him, he presented a picture of a universal erythrodermia, the leukemic changes having gradually evolved. Now with the permanent progressive increase in lymphocytes, he presents a typical picture of universal leukemia cutis.

DR. PUSEY: There is no use any more for the name "pityriasis rubra of Hebra." That is a classic picture of an old condition. I remember a man we had at the Cook County Hospital thirty years ago who looked as much like this man as a twin brother. The only difference is that in Hebra's day and our early day, we did not know the difference between this and the picture produced by the leukemias.

DR. ORMSBY: In my previous discussion I merely called attention to the observations on one of these cases recorded two years ago, and it is of much interest and importance to learn that during this time the blood picture has changed, and that the case is now placed in the lymphoblastoma group. The work of Dr. Wile and his associates in collecting these various types of exfoliating dermatitis together with other cutaneous changes and grouping them under a single title helps much to clarify a difficult problem. We have recently studied the case of a patient with general exfoliative dermatitis whose blood was normal but whose skin on microscopic examination showed the changes seen in granuloma fungoides.

LYMPHOBLASTOMA; LYMPHOSARCOMA. Presented by DR. WILE.

H. L., a man, a machinist, aged 25, married, said that his eruption first appeared on the hands about eighteen months previous to presentation. From there it slowly spread to involve the forearms, groins and face. The eruption had been pruritic and had been treated by means of various ointments, lotions, thirty ultraviolet and one roentgen-ray treatment. Swelling in the groin had been present about five years and was thought to be a hernia.

At the time of examination, the patient presented an eruption made up of two parts. One of these, involving the face, groins, neck and forearms, was made up of confluent plaques which had been vesicular and now presented considerable crusting, weeping and scaling. There was also evidence of pruritus. The second part of the eruption was confined to the region of the genitalia and consisted of several elevated plaques the size of a twenty-five cent piece which were dully inflammatory and slightly condylomatous in type. There was a generalized lymph-

adenitis which was more marked in the right groin where it presented as an orange-sized tumescence which was apparently made up of several smaller tumors. These were all discrete, not especially tender and moderately firm.

The blood Wassermann reaction was negative. Blood counts were approximately normal except for slight eosinophilia. The platelets were normal. Biopsy of the inguinal gland was reported lymphosarcoma.

LYMPHOBLASTOMA; LEUKEMIA; CLINICAL PICTURE OF MYCOSIS FUNGOIDES. Presented by DR. WILE.

N. E., a man, aged 46, American born, a garage worker by occupation, considered his health unusually good until about two and one-half years prior to presentation, when the eruption now present made its appearance. He recalled that the first lesions followed a tonsillectomy, and presented on the legs a redness with scaling, which gradually extended until the trunk, extremities and head were involved. Pruritus of increasing severity was the only symptom at the present time. There was no history of internal medication, and only local applications after the appearance of skin manifestations. At no time had there been tumor formation.

The patient was a well nourished man who presented a universal eruption, the most striking feature being the underlying dull erythema, most marked over dependent portions. Especially over the lower part of the back, buttocks and thighs were irregularly round, circumscribed, depigmented and hyperpigmented areas. At the present time none of these were definitely infiltrated. The whole process was associated with a fine branny desquamation, and all the superficial lymph glands were strikingly enlarged.

Treatment had consisted of hospitalization and superficial roentgenotherapy. The blood count at the time of presentation was: 90 per cent hemoglobin; 4,900,000 red blood cells; 14,050 white blood cells; differential count: neutrophils, 26 per cent; transitionals, 2 per cent; eosinophils, 5 per cent; basophils, 2 per cent; small lymphocytes, 5 per cent; large lymphocytes, 61 per cent.

CUTANEOUS LYMPHOBLASTOMA; LEUKEMIA; LEUKEMIA CUTIS. Presented by DR. WILE.

F. W., a man, aged 34, was first seen in June, 1924, eight weeks after the appearance of an eruption which he associated with exposure to a patient afflicted with "ivy poison." It first appeared on the hands and arms, and in two weeks was a generalized process, the original lesions being papulovesicular in character with crusting and scaling. Pruritus began with the eruption and was almost intolerable. Examination at that time showed a universal scaly erythematous process which was best described as a dermatitis exfoliativa. The exfoliation was abundant, and the skin was greatly thickened. The superficial lymph glands were enlarged to the size of an olive, except those in the inguinal region which were the size of small lemons.

The patient had been seen at frequent intervals since that time with striking exacerbations and remissions of the signs and symptoms. The pruritus, dermatitis with exfoliation, and enlargement of lymph glands had been the constant clinical features.

The original blood picture was: hemoglobin 85 per cent; red blood cells, 4,220,000; white blood cells, 15,400; the differential blood count was: hemoglobin, 60 per cent; basophils, 1 per cent; eosinophils, 8 per cent; monocytes, 4 per cent; transitionals, 3 per cent; large lymphocytes, 14 per cent; small lymphocytes, 12 per cent. Since that time the white cells had been as high as 29,800; lymphocytes, 41 per cent; and eosinophils as high as 34 per cent.

The blood picture at the time of presentation was: white blood cells, 8,450; red cells normal; neutrophils, 68.5 per cent; eosinophils, 4.5 per cent; basophils, 0;

large lymphocytes, 17.5 per cent; small lymphocytes, 1 per cent; endotheliocytes, 8.5 per cent.

LYMPHOBLASTOMA; LEUKEMIA CUTIS; LEUKEMIA? Presented by DR. WILE.

E. McD., a man, aged 40, a machinist, married, gave a marital, past and family history which was unimportant.

The present illness began in October, 1926, when the patient developed an acute eruption of the skin which was diagnosed as psoriasis by his physician. He received treatment in form of alpine light locally, and arsenic internally, over a period of two weeks and not to exceed a total of fifty drops. As the psoriasis cleared up, there appeared another eruption, first involving the face and gradually spreading over the entire body, which was characterized by marked scaling and redness, together with thickening of the skin and an almost intolerable pruritus. Under colloidal baths and a 3 per cent salicylic acid in petrolatum, the symptoms had been controlled.

Repeated blood examination had shown a normal red count and hemoglobin. The total white count had varied between 4,800 and 11,500. The differential was as follows: polymorphonuclears, from 54 to 60 per cent; lymphocytes (large and small), from 20 to 42 per cent; eosinophils, from 4 to 20 per cent; basophils, from 0 to 1 per cent; transitionals, from 0 to 1 per cent.

The patient presented a generalized scaling, which was superimposed on a brightly erythematous and thickened skin. There was a decided generalized lymphadenitis present.

A microscopic section was shown.

CASE FOR DIAGNOSIS. Presented by DR. WILE.

F. K., a man, aged 50, had had psoriasis at intervals for the past forty years: it was never severe. Eight months previous to presentation the disease suddenly became universal and itching became intense. Under treatment at the hospital, the lesions retrogressed up to the present condition. Treatment of any kind was now unavailing. The patient had large lymph nodes in the axilla and in the groin. The blood count was normal.

DISCUSSION

DR. MICHELSON: I think the term "lymphoblastoma" should be accepted in a large sense, but from information gained one should make an effort to subdivide as to type. I would also like to mention that the pathologist's diagnosis on inguinal glands in this entire group is not reliable, and that specimens taken at various stages vary greatly.

DR. KEIM: I wish to know whether the glands that vary do not include the usual four, mycosis fungoides, Hogkin's disease, leukemia and lymphosarcoma. Did the variations confine themselves to that group?

DR. MICHELSON: No, not in all instances.

DR. KEIM: We find that the diagnosis of the pathologist is usually confined to this group, although occasionally examination of the gland is reported as a simple inflammatory process of gonorrheal or syphilitic origin. I agree that the examination of the gland is not diagnostic, but it is usually informative when viewed in the light of the skin picture. I think there is a wide variety of skin changes as well as some variation in the pathologic processes. The microscopic examination frequently shows early an involvement of the primative lymph nodes of the skin, and there is almost invariably a predominating type of cell showing the genetic relationship existing between these conditions.

DR. O'LEARY: This group of patients is particularly interesting, and I regret that some of our New York friends are not here to see them. I agree that lymphoblastoma is a convenient term to use for the present until we have had

the opportunity for detailed cooperative study of a large series of cases. I believe these cases are rare enough to warrant the establishing of a central clearing house where the results shown by microscopic examination and autopsy data may be accumulated. A plan of this kind would undoubtedly settle the present controversy in regard to these diseases. Last week I had a patient who presented the clinical picture of mycosis fungoides which was confirmed by a microscopic study of the skin. A gland removed for diagnosis was reported as sarcoma by one pathologist and Hodgkin's disease by another pathologist. I might add that both the pathologists have had extensive experience with these disorders. The skin changes in this group of diseases are not constant; at one time the microscopic picture may be pathologic for that disease, while at some later date it will not be characteristic. I had an opportunity of studying the patient in case 4 last year, and I made a diagnosis of lymphoblastoma. The pathologic picture of the skin and a gland was reported as inflammatory, and several complete differential blood studies did not permit of a diagnosis of leukemia. Dr. Keim informs me that the hematologists are now able to make a diagnosis of leukemia. The point that Dr. Michelson made may be emphasized by the fact that I have treated with malarial therapy the patient in a case of mycosis fungoides who had received several courses of intensive radiotherapy without benefit. I mentioned this case in a discussion at the American Dermatological meeting last year, when I reported that no improvement had been noted at that time. During the past year, however, the patient developed a remission, with the disappearance of the pruritus and skin lesions. I can readily conceive how a patient's resistance mechanism may be changed by some factor similar to a course of malaria and thus alter the skin picture from year to year in certain of these lymphoblastomas.

DR. PUSEY: When Dr. Michelson was talking about getting a conception of these things I thought of my own conception, which is that these are dermatoses associated with a disease that has the criteria of lymphogranulomatosis. They cover a good many things in the skin, and we are simply finding our way along on the basis of these fundamental changes that we are finding associated with them. I was gland to hear Dr. O'Leary refer to the changing character of these conditions. It has been my experience in the past to see a good deal of them in a casual way, and to see a good deal of pseudoleukemia, lymphosarcoma and leukemia, and I have been impressed, in following a number of these cases for a long time, with the fact that transitional forms occur. Without regard to skin changes, it has been extremely difficult to diagnose, and difficult to determine whether pseudoleukemia had not gone over into leukemia and that these conditions were as variable as are the skin changes. I do not feel like discussing these skin cases in the presence of gentlemen who have the opportunity to bring us six in one clinic. In my broad wiping out of Hebra's disease as nothing but a form of leukemia of the skin, I did not mean to say that I thought there was no such thing as chronic exfoliative dermatitis. What I meant was that the typical, classic cases described by Hebra were most likely leukemia. I was impressed with the statement made by some one that these lymphogranulomas in the skin are toxic eruptions. I think that is true, but not always true. I think that we get true infiltrations in the skin, but there are toxic eruptions that do not show this lymphocytic infiltration.

In the case of the man who had psoriasis, he may have a lymphosarcoma in the future, but I am inclined to guess that he does not have that type of case. He has a good deal of leathery infiltration, but the rest is a dry, thin, papery skin. I think that it is a subsiding eruption, if not in part still active psoriasis, and my impression is that he does not belong in this group.

DR. MCBRIDE: I wish to recall to Dr. Pusey the case of Pat at the Cook County Hospital. Pat was presented about 1900 as having pityriasis rubra of Hebra. He died in Kansas City fifteen years later with a condition diagnosed as pityriasis rubra. There was no evidence of leukemia. He was an orderly in Cook County Hospital thirty years ago.

DR. PUSEY: Pat was an old friend of mine as well as of Dr. McBride. He may have developed a case of pityriasis rubra in Kansas City, but so far as I knew his case, he presented a typical pityriasis rubra pilaris. He also developed syphilis, and it was interesting to see the syphilitic eruption in his case. I have a case in my book of a patient from the Cook County Hospital who looked like this man who was presented today. He was presented as a case of Hebra's disease, and I think he had it.

DR. MICHELSON: I would suggest that some fresh glands be turned over to a hematologist for his examination. I think it might be helpful.

DR. WILE: We are grateful for the discussion. I wish to say that the term lymphoblastoma is introduced merely in an effort to avoid the confusion that Dr. Michelson confesses himself to feel. It is a term that signifies marked activity on the part of the lymphogenous elements in the body. That is the outstanding thing in my mind, whether they are mycosis fungoides, leukemia cutis, or the cutaneous manifestations of lymphosarcoma, or the various lymphadenoses so-called, they have this thing in common. It is a change in the body which some think is a malignant change. If they have this factor in common, it is well to try to realize that these things do go from one phase to another. A perfectly competent pathologist will diagnose leukemia in one case, lymphosarcoma in another and perhaps Hodgkin's disease later. A typical case of mycosis fungoides will show various changes in the histologic structure at different times in different tumors, and at the same time in different tumors. We have cases of mycosis fungoides here with the picture of a cell of one type, large or small lymphocytes, and yet the characteristic picture is said to be made up of cells of two or three different types. The term lymphoblastoma is put in merely to group together a number of conditions which are fundamentally at least lymphoblastomatous genetically. They are conditions of the embryonal cell type of the lymphogenous structure, which attack different parts of the body, frequently the skin, and later on become universal. We may have to give this up, but I think it is an orderly way to think of it. We find it convenient to say that a certain thing is Hodgkin's disease type, that another is the mycosis fungoides type and a third the leukemic type of lymphoblastoma.

I was interested in hearing what Dr. Pusey said about the old gentleman, because I thought he did not have psoriasis at this time. I thought his case might be a prefungoid type of mycosis fungoides. I am glad to have Dr. Pusey's opinion, for with his large experience it makes me think and hope that the man has nothing more than universal psoriasis.

DARIER'S DISEASE. Presented by DR. WILE.

R. S., a man, aged 23, a laborer, single, had an eruption of six months' duration. It appeared first over the anterior trunk and disappeared spontaneously only to recur again, spreading to involve the face, neck, scalp and extremities. It was attended with some pruritus.

The patient presented an eruption involving the trunk, face, neck, scalp and extremities. The lesions were both discrete and confluent, averaging in size about that of a glass-headed pin, and on involution left a mottled brownish hyperpigmentation. The lesions tended to occur in crops and showed some grouping. The individual papules were dully inflammatory, shotty to the feel, but fairly superficial and most of them were capped with a heaped-up verrucous crust. The patient had not responded to any form of treatment. A biopsy was shown.

DISCUSSION

DR. PUSEY: In my opinion we can only thank the gentlemen for presenting this case and for telling us what it is. It relieves us of much mental perturbation and anxiety.

DIFFUSE TUBERCULOMA OF THE LIP. TUBERCULOSIS ORIFICIALIS. TUBERCULOSIS VERRUCOSA CUTIS OF THE HAND AND GLUTEAL CLEFT. ACTIVE PULMONARY TUBERCULOSIS. Presented by DR. WILE.

J. K., a man, aged 48, a sugar beet laborer, married, said that about twelve years previous to examination he noticed lesions appearing on the back of the right hand and in the gluteal cleft. The lesion on the hand was cauterized, but recurred. About one year prior to presentation he noticed a beginning soreness of the lower lip with the gradual appearance of a nodule. Recently he had lost some weight and noticed some beginning hoarseness.

The buccal mucous surface of the lower lip presented several dully inflammatory plaques. These were somewhat infiltrated, and typically verrucous. There was definite ulceration in the central portion and a sharply circumscribed cherry-sized nodule of hard rubber consistency just below this. Over the back of the right hand and in the gluteal cleft, just below the anus, there were verrucous plaques the size of a silver dollar. A biopsy was shown.

DISCUSSION

DR. MITCHELL: I was interested in this case because I had an opportunity of seeing the patient in November. Since then the lesions on the hands have undergone a marked degree of ulceration, the lesions in the mouth have changed so that they are now tender and the weight has gone down. I was amazed at the condition of his mouth in November, as it was pathologically tuberculosis but clinically not tuberculosis. It was surprising that the man could have so much involvement of the mucous membrane without tenderness, but now the case is clinically typical of tuberculosis.

DR. MICHELSON: I think it is a remarkable case in view of the fact that we have the extremely benign and extremely malignant type of lesions existing in the same case.

ANGIOKERATOMA. Presented by DR. WILE.

R. A. M., a man, an experimental worker (motor), aged 25, single, said that his lesions began about fifteen months previous to presentation with burning of the feet. Following this he noted small "lumps" on the soles, and these had since spread to involve both hands and feet, elbows and knees. These became smaller at times, but never entirely disappeared. He had noted occasional blister formation and when the lesions were traumatized a small amount of bloody exudate came out. There was a definite history of frostbite some years before the lesions appeared.

On examination, the patient presented an eruption made up of two parts. One of these consisted of verrucous nodules varying in size from that of a pinhead to that of an English walnut, and were localized to the bony prominences, particularly the knuckles, ankles, knees and elbows. These were on a bluish base which was apparently cystic, and on puncture a thick sanguineous material exuded. In addition, there were small pinhead-sized macules, particularly on the soles, which were brownish-red and which did not fade on pressure. One ear presented a similar lesion.

The Wassermann reaction of the blood was negative. The blood sugar, non-protein nitrogen and calcium were normal.

DISCUSSION

DR. PUSEY: It seems to me we ought to express our appreciation of the case at least. I am under obligations to Dr. Wile for two things in connection with this case: First, for disabusing my mind of the fact that these little angiokeratoma of the scrotum are Mirabelli's disease. I would not have made the diagnosis had I not been guided to it by seeing the angioma on the feet and having the lesions analyzed for me, and seeing the specimen. We have no doubt

about the diagnosis now, and I think it is extremely instructive to us to have seen this case.

ANGIOKERATOMA? Presented by DR. WILE.

R. E., a man, a student, aged 22, single, had a disorder which began about four years previous to presentation as chronic persistent lesions over the knuckles of both hands. The ones on the left hand began to involute spontaneously, while those on the right enlarged. They were pruritic, and showed a tendency to fissuring and bleeding. Some of them showed a slight scaling. No history of frostbite was obtained.

He presented over the knuckles of both hands, especially the right, hyperkeratotic lesions which were dully inflammatory and contained numerous vascular dilatations that did not fade on pressure. They were painless and relatively superficial.

DISCUSSION

DR. MICHELSON: I have recently examined the members of a family with hereditary palmar keratoderma. One member of this family had lesions only on the knuckles which were precisely like the lesions in the case presented. I would therefore make a diagnosis of keratoderma, however, not keratoderma palmaris.

DR. PUSEY: I think that it is an extremely interesting suggestion. I have seen keratosis over the knuckles in symmetrical keratoderma similar to what Dr. Michelson refers to.

DR. SENEAR: Several months ago Dr. Weber presented a patient, a middle aged, fleshy woman, with lesions on the proximal phalanges. The diagnosis accepted there universally was that it was a chronic verrucous dermatitis. The picture was like this. Within the last few weeks I have seen a patient with lesions on the hands that Dr. Oliver also saw, and I think that while the diagnosis in this case is not the same as in mine, the alternate diagnosis might be a simple vegetating dermatitis.

DR. WILE: I think the diagnosis that was suggested is a happy one. The diagnosis of angiokeratoma should have been written in small letters and the question mark made large. When we first saw this patient he had verrucous lesions in the same location. They were bloody, and we could squeeze out a bloody exudate. A student came in with the same fine lesions, and we had not seen anything like it. I have seen the same thing in Germany among milkers; the hypertrophic lesions occur on the inside of the hand and on the outer side of the hand where that part touches the udder. It is a hypertrophic nodule. I am interested in hearing that Dr. Michelson and Dr. Senear have seen things like this and regard it as the dyskeratotic type of keratoderma.

Book Reviews

DIE MALARIABEHANDLUNG DER PROGRESSIVEN PARALYSE. By DR. JOSEF GERSTMANN, Assistant in the University Clinic for Psychiatry and Nervous Diseases in Vienna. Preface by DR. JULIUS WAGNER-JAUREGG. Second revised and enlarged edition. Price, 24.40 R. M. Pp. 275, with 17 illustrations. Vienna: Julius Springer, 1928.

This volume presents the entire story of malarial treatment in cases of paresis by Gerstmann, who seems admirably qualified to present the subject, as he has been an assistant of Wagner-Jauregg since 1919, and has had the opportunity of studying over two thousand cases of paresis, from the latter's clinic, in which this treatment was used. The first twenty pages deal with the development of the malarial therapy from other forms of known specific methods in the treatment of patients with paresis.

In this chapter is recounted the influence of various infections and fevers, both accidental and induced. The balance of the book is concerned with initiation of the tertian malarial treatment as recommended by Wagner-Jauregg, and is most complete in all of its details concerning the selection of cases, technic, course of the disease, contra-indications, resulting immunity, serum reaction and other points.

Included in these chapters is also the question of a prophylaxis against paresis by malarial treatment of ordinary syphilis, which should be instituted particularly early.

In this connection, the author believes that the weight of evidence speaks for a protective influence against metasyphilitic diseases, particularly in patients with paresis who are treated during the early period with malaria therapy.

The author adds, however, that this is for the present a more or less hypothetic conclusion which only time can decide.

About twelve pages at the end of the book deal with an interesting discussion of the difference between spontaneous remissions in paresis, and those induced by malaria. The most important point of differentiation is that the therapeutic remissions are much more stable than the spontaneous ones, and indeed are for the most part of indefinite duration.

The three oldest cases under their observation had been in remission, at the time of writing, for over ten years.

In his conclusion, the author states that the new malarial treatment in cases of paresis has completely upset the dogma of the incurability of this condition. The only question in connection with the therapy lies in the degree of benefit which can be attained, depending on the stage of the disease which is present. For this reason, it is essential that treatment must be begun extremely early to get the best results.

Prophylactic treatment in latent cases, which might be assumed to be potentially those that would develop metasyphilitic lesions, is also recommended. As a result of the wide experience now at hand, the author believes that malarial treatment in paresis stands out as the only method at hand which can lead to a cure of this hitherto most incurable of all the diseases of the nervous system.

An excellent and most complete bibliography concerning the entire subject of the malarial treatment of syphilis is included, and the volume stands out as an excellent monograph of this most interesting subject. For all neurologists, psychiatrists and syphilologists who are making use of the method, this treatise should stand as an excellent text and guide.

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William H. Guy, Secretary, Jenkins Arcade, Pittsburgh.
Place: Portland, Ore. Time: July 8-12, 1929.

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